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FLOOD STORAGE RESERVOIRS: THEIR EFFECT ON THE POWER INDUSTRY

By CHARLES KELLER

FLOODS have been numerous in the valley of the lower Mississippi River and many of them have done great damage. To mention only comparatively recent examples, those of 1912, 1913, 1916 and 1922 may be cited. All of these excited public notice but never, before the flood of 1927, was the mechanism for disseminating picturesque publicity, or the wish to do so, as intensely developed as happened to be the case in 1927. The newspapers everywhere seized upon this flood as being news material profitable for exploitation, and, at least in the area from the Mississippi Valley to the Atlantic seaboard, for many days they held popular interest and attention by their stories and photographs of conditions in the flooded country.

While this explains the general interest of the public in the 1927 flood, it still remains a fact that, in volume of water, height of stage, area of inundation and amount of property damage, it constituted one of the greatest catastrophes of its kind experienced in the

Mississippi Valley. As a result, widespread discussion followed among engineers, in the daily press, and finally in Congress as to means of safeguarding the nation against the repetition of such a disaster.

It is familiar knowledge that the lower Mississippi Valley has for years been protected by a system of levees which have progressively been raised, strengthened and extended as the necessity for so doing was shown and as the national policy regarding levee protection was modified and rendered effective by provision of requisite funds.

At the time of the flood of 1927 there had been in existence for some years an official project for raising and strengthening the levees in accordance with a plan formulated after the flood of 1922. This new project was, however, not completed, and failures came in the levee system at some of the localities at which the levees lacked either the height or the cross-section called for by the new plans.

While these breaks acted as safety valves and, by lowering the river, served to prevent similar damage at other places, this is no evidence that, had no such relatively weak places existed, the flood waters could have been safely conducted to the Gulf of Mexico. Indeed, the contrary is probably true. But for the crevasses and the diversion of flood waters into the extensive basins thereby made accessible, the Mississippi would eventually have risen above the top of the levee system and more or less general failure would have taken place somewhere.

Among the expedients that readily suggest themselves for avoiding or reducing the danger to life and property incident to such floods as that of 1927, one of the most obvious is their complete or, at least, partial suppression by means of reservoirs so located and operated and of such capacity as to reduce the volume of water discharged by the Mississippi River sufficiently to keep river stages at safe heights. The complete suppression of floods so as permanently to confine the discharge of the river within its natural banks is a costly counsel of perfection, rendered unnecessary by the existence of the levee system and the certainty that it may be relied on to carry moderate floods.

Accordingly, the common form of reservoir proposal contemplates the storage of such portions of floods as will be necessary to prevent the Mississippi River from rising above the heights judged to be safe at certain points in the Valley. Ordinarily, the general discussion of this method of flood relief suggests the creation of reservoirs at the headwaters of the principal tributaries.

The general scheme is attractive and it deserves, and has received, careful consideration. Indeed, it has been dis-

cussed from many points of view for nearly three generations. Such discussions were originally based upon the use of the reservoirs for flood control only. In the absence of means for utilizing large quantities of energy, no suggestion was originally made that it might be possible to reduce the cost of this method of relief by developing the incidental water power.

During the past 25 years, however, the art of generating electrical energy from falling water has virtually reached mechanical perfection and it has been frequently asserted that the electrical energy generated at reservoirs created for the control of floods would be of great commercial value and go far toward paying the cost of the storage dams and reservoirs. This plan was given great prominence after the Mississippi Valley flood of 1927, not only in newspaper articles and editorials, but in the debates in Congress. As a consequence, it was carefully studied by the War Department and its engineers in connection with the investigations that followed this flood.

It goes without saying that the merit of any plan of flood control depends in large measure on its cost. For equal reductions in the heights of floods at critical points, the plan affording assured protection at lowest cost should obviously be chosen.

The views of the War Department and of the Chief of Engineers of the Army on the applicability of reservoirs to the alleviation of the destructive floods of the lower Mississippi Valley are stated in two documents of the House of Representatives.¹

¹ Document No. 90, House of Representatives, 70th Congress, 1st session, pp. 20 to 23, summarizes the views of the War Department, and Document No. 2, 70th Congress, 1st session, of the Committee on Flood Control of the House of Representatives, gives a statement in greater detail.

The general conception of flood control by means of reservoirs visualizes a system of numerous large artificial lakes at points far distant from the areas to be benefited by the storage. The belief is that these reservoirs will be simple and cheap to create and that their operation for the desired purpose will be easy, while at the same time they will enable valuable waterpowers to be put to work. The investigations show, however, that such a system would, for any material reduction in the heights of floods in the Mississippi Valley at and below Cairo, be very expensive and that the operation of the numerous reservoirs would be difficult and uncertain.

Specifically, it is stated that to reduce flood heights 6 feet at Cairo, 7 feet at the mouth of the Arkansas River, and 5.4 feet at the mouth of the Red River would require 203 headwater reservoirs at a total cost of about \$1,300,000,000 and that, if these reservoirs were operated primarily for reducing flood heights at and below Cairo, the capitalized value of the incidental benefits in the way of local flood protection, navigation, irrigation and power would be about \$150,000,000, leaving the net cost of flood protection below Cairo at \$1,150,000,000.

As the same results in the way of flood protection in the lower Mississippi Valley can be had by means of improved levees, supplemented by spill-ways and flood-channels, at a cost of about \$190,000,000, it is evident that the value of the power combined with the other incidental benefits of the headwater reservoir scheme is insignificant in comparison with this excess cost of nearly a billion dollars and that this scheme of flood protection is financially unsound, leaving aside altogether the difficulty and uncertainty of making it work. If these reservoirs were operated pri-

marily to secure what have been termed incidental benefits, such as power output, local flood relief, water for irrigation or greater depths for navigation, their cost would remain the same but the amount of reduction in the heights of the floods of the lower Valley would be less, largely because the release of water would be governed by considerations other than the alleviation of these remote floods.

The War Department's engineers, therefore, considered a less familiar type of reservoir system consisting of reservoirs in or near the main valley of the lower river, close to the localities to be protected. It is clear that they can be operated more easily and positively than headwater reservoirs. At the same time, it is possible to make them of greater individual capacity so that a smaller number would be required for a desired reduction in floods. The study disclosed the possibility of a system consisting of only 30 reservoirs. These would reduce flood heights 3 feet at Cairo, 10 feet at Arkansas City, and 7 feet at Vicksburg. Their effect on floods, therefore, would be less at Cairo and more at the other localities than that of the system of 203 headwater reservoirs just described, though probably the amount of protection measured in terms of the values affected would be about the same.

These 30 reservoirs would cost about \$525,000,000 after giving full credit for all accessory benefits including power. The War Department judged this scheme of flood control, like the preceding one, to be financially out of the question. Obviously, the power values are inadequate since the capitalized value of the estimated profit arising from the sale of power is over \$300,000,000 less than is necessary to bring the cost of an adequate reservoir system of this second

type below that of securing equal or better protection against floods by other means.

This conclusion is probably applicable generally to reservoir schemes, wherever located, whose principal purpose is flood protection. It might have been inferred from the way in which such reservoirs must be operated. To make them useful in lowering flood heights, these reservoirs must be empty in advance of the flood season and must be permitted to fill at such predetermined rate and during such period as will insure their serving the purpose for which they are designed. The Power Survey Committee of the National Electric Light Association, Great Lakes Division, recognized the difficulties in operating reservoirs for conflicting purposes.²

As floods are liable to occur during a comparatively long period in any one year,³ it is seen that reservoirs may be held empty for three months or more to await information as to precipitation and runoff. As more than one flood may occur in a single season, they must also be emptied as soon as is consistent with due regard to the danger of adding to existing floods.

The problem of operating them safely and effectively is difficult, but the salient fact from the standpoint of power development is that the reservoirs must be empty a considerable portion of the time and that part, and sometimes all, power from them would be intermittent in duration and variable in quantity and not always coincident with the greatest demand for power.⁴ To make

the entire output useful, it must be reinforced from other sources so that consumers may always be certain that their wants will be supplied. Usually this reserve supply must be generated in steam plants whose capacity must at least equal that of the discontinuous water power in question and, since the reservoirs will usually be remote from large centers of population, high voltage transmission lines will be needed to deliver the water power at the points of consumption. In other words, to make the water power commercially useful, it is necessary to create and pay for steam generating capacity sometimes equal to the water power, together with transmission lines from the water power to the load center.

As a result the capital required to serve the public is increased by the amount invested in the transmission line and part or all of the water power while the only possible saving is part of the fuel that would be needed to generate all the required energy at the steam plant near the load center.

Whether the saving in fuel is sufficient to justify the investment in the water power and transmission line will depend on the circumstances and each case will require special study before a conclusion can be reached. Even where the water power can be shown to be economical, its advantage will be relatively small and, as will hereafter be shown, will constantly tend to diminish.

than if no flood reservoir had been constructed, as it might overflow and destroy the reservoir bringing down on the valley below a flood in excess of any that would otherwise occur." (*Electric Power Survey, 1928 Supplement*, N. E. L. A., Great Lakes Division, Power Survey Committee, p. 12.)

³ Floods on the lower Mississippi have reached their maximum at Cairo generally between February 15 and May 15, but have also occurred earlier in February and later than May 15.

⁴ See *Electric Power Survey, 1928 Supplement*, *op. cit.*, p. 12.

² "If flood protection reservoirs are to be utilized also for water-power storage, they must be so increased in capacity that the flood waters may be promptly discharged after being collected so that the capacity for a new flood will be available and additional capacity for water-power storage purposes still maintain[ed]."

. . . The danger of this combination would be that the flood waters would be held for water-power purposes and a second flood would find no reservoir capacity available, and might cause even greater loss

Merely as an illustration of the conditions that may be encountered, let us consider the power value of flood reservoirs at the head of the upper Mississippi and endeavor to arrive at an idea as to whether the development of the water power would be commercially practicable. Unless it be commercially practicable, the water power cannot, of course, be expected to help defray the expense of flood protection.

At this locality, there now are two large reservoirs with a total storage of 77 billion cubic feet or about 1,700,000 acre feet. While these reservoirs are not now operated between common limiting levels, it will favor the water power to assume that they can be operated in unison without increase in storage, and consequently in property damage. Under these assumptions a water power plant of 3600 kw. installed capacity with about 21,700,000 kw.h. of annual output would appear to be suitable. The power plant would probably cost \$360,000 and the transmission line approximately \$750,000. Figuring the cost of delivering the energy on the usual basis, it is found to be about seven mills per kilowatt hour which is considerably more than the value of the coal saved. This conclusion seems applicable whether the reservoirs be operated for the relief of floods at and below Cairo, or for giving protection against floods to the region at and above St. Paul.

The story is but little altered when we come to deal with reservoirs close to the scene of the major floods now in question. To create such reservoirs with accessory power possibilities of real value generally involves the construction of dams extending well above normal high water at the places where they are situated. The reservoirs when full would submerge areas now occupied by dwellings and other improvements, a

circumstance that would add considerably to their cost. At the same time, it might often cause so much hardship, sentimental or otherwise, as to cause public protest such as might often offer a complete bar to the construction of the reservoirs. However, the War Department has, as above stated, studied in some detail a project including 30 reservoirs of this class and, while the project is regarded as being too costly in comparison with the plan of protection actually recommended, it is of interest to consider one of the dams that is most favorable from the standpoint of incidentally developed power.

This is the dam across the Mississippi at Commerce, Missouri, some 100 miles below St. Louis on the Mississippi River. Here the proposal is to build a dam 80 feet above low water or some 30 to 40 feet above highwater at the site. A power plant with about 270,000 kw. of installed capacity is included. Provision is made for 3,900,000 acre feet of storage capacity, using for this purpose the upper portion of the reservoir.

The maximum floods at this locality discharge about 1,300,000 cubic feet per second and the best utilization of the storage requires that provision be made for passing a maximum of 1,000,000 cubic feet per second through the dam. Accordingly, if the storage is empty at the beginning of a maximum flood, it might be filled in as few as 15 to 20 days should a peak flood such as that of 1844 occur. Usually information will be available to form a guide for approximate judgment as to the magnitude of an approaching flood and the program of reservoir operation will be adjusted accordingly. The studies of the War Department show that, with such floods as have heretofore been encountered, a longer period than above mentioned

might safely have been devoted to filling the storage.

The plan of the War Department contemplates the creation of this reservoir by means of a dam with large sluiceway capacity, the total cost of the reservoir including the dam, power plant lock and all property and property damage being about \$130,000,000. This reservoir renders possible the development of a large amount of energy, roundly about 2,000,000,000 kw. h. in an average year, of which 105,000 kw., or about 736,000,000 kw.h., is primary energy.

The War Department figures the average reduction in flood heights in the lower Mississippi Valley caused by this reservoir to be 1.2 feet and the capitalized value of this energy to be \$40,000,000. As the reduced flood heights could be secured for less than the remaining cost of the reservoir, the fair conclusion is that the power susceptible of being developed is not of such value as to justify the construction of the reservoir. Moreover, it might be said that the capitalized value of the power derived by the War Department is probably excessive and that it is probable that the power would earn considerably less profit than has been assumed.

The two schemes of power development are probably as favorable to power possibilities as any that could be adduced in connection with any practicable scheme for controlling floods in the lower Mississippi Valley by means of reservoirs. In general, the conclusion seems warranted that the power susceptible of development in any such scheme will not be of sufficient value to make the scheme preferable financially to the plan of flood control advocated by the War Department. Therefore, it is improbable that any of this purely

incidental power will, within the near future, be brought into the market and the chances are that the power industry in or near the Mississippi Valley will not be affected by the construction of flood storage reservoirs.

These conclusions as to the effect of such reservoirs in connection with the consideration of Mississippi River floods are probably generally true wherever protection from floods is likely to constitute a major public problem in the United States. Cases exist, however, in which reservoirs operate effectively for the control of floods and at the same time permit water power to be developed advantageously.⁵ In all such cases, the reservoir capacity is a very large part of the total flood-producing run-off. Such cases are infrequent and they usually arise on small streams and in remote regions so that they produce no broad effect on the power industry.

Moreover, it should be remembered that the economic value of this water power depends on the cost of steam-generated energy and that the situation of steam plants is steadily improving. Between 1920 and 1926 the average consumption of coal by public utility power plants in the United States per kilowatt hour generated fell from 3.02 to 1.93 lbs., and the cost of this fuel from 1.02 cents to 0.40 cents. The decline in the amount of coal used was the result of improvements in machinery and equipment that have increased the efficiency of steam turbines by about one-third in this period. Even today, however, the energy delivered by the most efficient steam turbines is less than 30% of the energy contained in the coal, so that, while great increase in the efficiency of steam stations has been wit-

⁵ St. Mary's River and St. Lawrence River, where the existence of a natural storage reservoir in the Great Lakes is a favoring feature.

nessed recently, there is still much room for further improvement with corresponding reduction in the cost of producing the energy. On the other hand, water power machinery is already very efficient. In fact, the average plant of the best design now delivers on the switchboard over 90% of the theoretical energy of the falling water. There is little opportunity for further improvement in the efficiency of water power plants.

Leaving aside the exceptionally unfavorable conditions under which water power plants built in connection with flood reservoirs must be operated, there are already many cases in which it would be unprofitable to develop the water power even for use as a base load. The chances are that much of the now

undeveloped water power in the United States will, for economic reasons, remain unused until that far distant day when the cost of fuel has risen to what would now be regarded as prohibitive figures.

Practically all the water power susceptible of development in connection with flood storage reservoirs belongs in the same class. It is not economical and there is little prospect that it will be developed for many years to come. Accordingly such reservoirs will have little effect, beneficial or otherwise, on the power industry except in so far as they may serve to improve the supply of water available for existing water power plants or for condensing water for steam power stations near the regulated streams.

THE SAN FRANCISCO CONDEMNATION CASES: A REVIEW OF THE EVIDENCE IN THE GREAT WESTERN POWER COMPANY PROCEEDING*

By WALTER J. HERRMAN

THE proceeding about to be reviewed was initiated (simultaneously with a like application covering the properties of the Pacific Gas & Electric Company) by the filing of a petition with the California Railroad Commission by the City of San Francisco on February 11, 1924. The properties sought to be appraised consisted at that time of eight parcels of real property, a steam-electric generating plant of about 20,000 K. W. capacity, three substations and the necessary overhead and underground distribution equipment and the general office equipment necessary to distribute electric energy to approximately 13,600 consumers, with a connected load of about 130,000 horsepower. They also included a portion of the properties of the Universal Electric & Gas Company, jointly acquired by the Great Western Company and the Pacific Gas & Electric Company about two years prior to the filing of the petition. These latter properties are approximately one-quarter of the size of the Great Western Company's San Francisco electric system proper.

The properties described and/or those of the Pacific Gas & Electric Company are sought by the City as an outlet for the energy generated at the City's

hydro-electric plant at Moccasin Creek. This plant was built in connection with the City's proposed municipal water supply system from the Hetch-Hetchy Valley and its output is now being sold on a day-to-day contract basis through the agency of the Pacific Gas & Electric Company.

The petition recited that the proceeding was brought under the provision of Section 47 of the Public Utility Act of the State of California. This section authorizes the State Railroad Commission, upon the filing, by a City, of a petition setting forth its intention,

"to initiate such proceedings as may be required under the law . . . for the purpose of submitting to the voters . . . a proposition to acquire under eminent domain proceedings, or otherwise, the lands, property and rights of any character whatsoever, of any public utility whatsoever, or any part or portion thereof," after service of process and upon notice to hear the petition and the evidence of the parties and thereupon to make its findings, "fixing in a single sum the just compensation to be paid."

Additional provisions require

"that if the Commission finds that severance damages should be paid, the just compensation for such damages shall be fixed and stated separately;"

and

"said just compensation shall be fixed . . . as of the day on which the petition was filed with the Commission."

The hearings in this proceeding were conducted by Commissioners Harley

*Editorial Note: This is the first of two articles on this proceeding. The second installment will be a digest and discussion of the Commission's decision. Further detailed information relating to the proceeding may be secured by addressing the author at 431 Sutter Street, San Francisco, California.

W. Brundige, Ezra W. Decoto and Clyde L. Seavey. Commissioner Thomas S. Louttit filled the vacancy occasioned by the death of Mr. Brundige in July, 1927.

Counsel appearing for the various parties were as follows:

John J. Dailey, for the City and County of San Francisco;

Guy C. Earl and Chaffee E. Hall, for the Great Western Power Company of California;

J. J. Deuel and Edson Abel, for the California Farm Bureau Federation.

More than four years have now elapsed since the filing of the petition and during this period extended hearings have been held, dozens of witnesses have testified and scores of lengthy exhibits have been introduced. The following review, which has been prepared in narrative form, must of necessity omit many of the minor details and much of the matter brought out on cross-examination, but it is believed that no important points in the direct case of either party have been overlooked.

The Company and Its Properties

The evidence in the case shows that the Great Western Power Company is a California public utility engaged primarily in the production and sale of electric energy, having been originally incorporated to supply the San Francisco Bay region with power developed from the Feather River. The physical system of the Company consists in the main of two large hydro-electric plants on the River, about 165 miles northeast of San Francisco, a series of high tension transmission lines to the Bay region, a primary steam stand-by plant in San Francisco and a smaller, secondary stand-by plant across the Bay in Oakland.

An important feature of the system is the ownership by the Company of the great Lake Almanor storage reservoir, located 4,500 feet above sea level at the head waters of the Feather River. This reservoir, the largest in California, is capable of regulating fully the stream flow of the River, thus making possible the economic development of 600,000 kilowatts of hydro-electric power, in addition to the present installation of 110,000 kilowatts (1924). It was pointed out by the Company witnesses, however, that the profitable utilization of this potential energy depended largely on the future growth of the system and the possession by the Company of self-supporting metropolitan loads, such as the one proposed to be taken by the City of San Francisco. In this connection, it was stated that except for the load around San Francisco Bay and in the City of Sacramento, the Company's business was largely rural and that about 90% of the territory in which the Company operated was competitive, and surrounded by territory into which the Company could not expand.

According to the financial statements submitted by the Company's auditor, the system's total operating revenue for the year preceding the filing of the petition (1923) was about \$6,900,000 and the net income after depreciation and taxes, but before bond interest, was about \$4,300,000. As indicative of the system's growth, it may be noted that the corresponding figures for the year 1920 were \$5,500,000 and \$3,500,000 respectively, and that during this period the surplus account increased from \$4,400,000 to \$5,400,000.

It was shown that the business derived from San Francisco represented more than \$2,325,000 out of a total gross electric revenue of \$6,750,000 in 1923. The density of the San Francisco busi-

ness is reflected in the figure of 80 consumers per mile of line, as compared with only 22 per mile of line in the remaining territory. It was also shown that the revenue per kilowatt-hour in San Francisco, for the year 1923, averaged 2.45 cents as compared to 1.39 cents in the outside territory. This latter differential, it was declared, was the result of the large predominance of high-rate lighting load in San Francisco and of low-rate industrial and farming load on the outside, the rate schedules themselves being substantially the same for similar classes of service throughout the entire system.

Summary of Company's Evidence

Just Compensation as Measured by the Loss in Market Value Resulting from Expropriation. The Company's claims in this proceeding rested primarily on the legal principle that the compensation that should be awarded for loss of the San Francisco properties and business is the difference between the market value of the whole properties before the proposed severance and the market value of the remaining properties after severance. In the establishment of such difference the Company submitted as of primary importance the opinion evidence of men experienced in the actual buying and selling of similar utility properties, or their securities.

Four witnesses testified on behalf of the Company that electric utilities have a market value which may be determined by an expert who is furnished with certain information relative to the properties and business. These witnesses were Mr. James T. Woodward, Mr. H. M. Addinsell, Mr. J. E. Baker, and Mr. Sidney Z. Mitchell. The first three of these men are all connected in responsible capacities with prominent investment banking houses, where their duties

require them to be continually informed upon the condition and extent of various public utilities throughout the United States and with the sale of such properties, and Mr. Mitchell, as President and Chairman of the Board of Directors of the Electric Bond and Share Company, has been continuously active in negotiating for the sale and transfer of electric properties since he entered the utility business in 1885.

Each of these witnesses was given a statement of pertinent facts relating to the properties and operations of the Great Western Power Company and particularly to its operations in San Francisco. This information included data on growth of the business, rate schedules, competitive conditions, developments on the Feather River, the water storage reservoir at Lake Almanor, income and expenses and capitalization as disclosed on the income accounts and balance sheets, and other matters which would be pertinent in determining a fair price for which such properties would sell in the open market. Having been acquainted with all of these facts, each witness was asked in turn for his opinion of the market value, first, of the system as it existed, and second, for the market value without the San Francisco properties. They stated their opinions as follows:

Mr. Woodward:	
For the properties as a whole.....	\$74,500,000
For the properties ex San Francisco.....	42,000,000 to 43,000,000
or a difference of from \$31,500,000 to \$32,500,000	
Mr. Addinsell:	
For the properties as a whole.....	\$65,000,000
For the properties ex San Francisco.....	40,000,000
or a difference of \$25,000,000	
Mr. Baker:	
For the properties as a whole.....	\$72,000,000
For the properties ex San Francisco.....	39,000,000
or a difference of \$33,000,000	
Mr. Mitchell:	
For the properties as a whole.....	\$75,000,000
For the properties ex San Francisco, not more than.....	50,000,000
or a difference of not less than \$25,000,000	

Mr. Mitchell's testimony was of interest, not only because of his valuable opinions as to loss in market value but also because of the many sidelights that he threw on the question in general.

"This business of tearing apart," he said, "means retrograding, means suicide to economy, it means the reverse of progress, it means higher costs and poorer service, it is the antithesis of modern progress and real economy. . . . I find this scheme of segregation, tearing to pieces small stuff; . . . It is foolish, it does not appeal to me. My theory and my training and my observation and study of economics have proven to me that it is the wrong thing. Make it bigger? Yes. Make it less? No."

One of the important factors to be considered in connection with the proposed severance, Mr. Mitchell pointed out, would be the increased cost of money for capital additions following the severance. He testified that the cost of money to the Company would be at least $\frac{1}{2}$ of 1% greater without the San Francisco properties.

Just Compensation as Measured by Actuarial Studies of Lost Net Earnings. To support and confirm the opinion of these experts on business value, the company also prepared, through its engineering staff, an elaborate set of actuarial studies, whereby determinations were made of the past and probable future losses in net earnings that would result from severance. These annual sums were then translated into a capital amount on the theory that such losses in net earnings would reflect a corresponding capital loss in market value. The foundation for these studies was laid by Dr. Arthur Twining Hadley, Professor of Economics at Yale University and President Emeritus of that institution, who appeared in behalf of the Company as an economist.

Just compensation, declared Dr. Hadley, in a case where only part of a

utility property is being condemned, should be an amount such that its return, when invested in securities similar in their characteristics to the securities of the Company whose properties were being taken, would yield an income equal to that lost by the expropriation. This income, he pointed out, would usually be greater than the net income actually credited to the severed part, the difference being attributable to the severance damages imposed upon the remainder. In the event that the properties in question were not new physically, he recommended that the amount so found should be reduced by a sum equal to the depreciation reserve attaching to the properties transferred. The soundness of this procedure, said Doctor Hadley, was almost universally admitted by business men and economists.

The problem of determining the income that would be lost by severance was undertaken by Mr. J. S. Moulton, engineer, Executive Division of the Company, who prepared a series of detailed reports, analyzing the past and probable future earnings and expenses of the Great Western System, operating with and without the San Francisco properties. The period covered by the retrospective studies included the years 1920 to 1925 inclusive, and the forecast studies covered the 10-year period 1926 to 1935, inclusive.

In introducing these exhibits, Mr. Moulton discussed the general anti-economic effect of severance and the reasons why the reduction in expenses on the remaining system could not be in any way commensurate with the reduction in revenues. It was quite obvious, he pointed out, that all the operating and fixed charges attaching to the hydro and transmission system of the Company would not be at all changed with severance, and that the general overhead

expenses could not be reduced more than a few per cent. When one further considered, he added, that the loss of the San Francisco load would destroy the valuable diversity characteristics now existing between it and the remainder, and further that the City sales yielded almost double the revenue per kilowatt hour that is produced by the remainder system, it should be apparent that a detailed analysis of revenues and expenses could do nothing but show a tremendous dollars and cents reduction in net earnings available for return on the property after severance.

The results of Mr. Moulton's retrospective studies show that in the six-year period, 1920 to 1925, inclusive, assuming expropriation as of the first of each year, the losses in net earnings after depreciation and taxes, but before bond interest, would vary from about \$700,000 in 1920 to about \$2,000,000 in 1925.

The results of the forecast studies indicate that, if severance had taken place on January 1, 1926, the Company would suffer losses in net revenue (after correcting for a 6% carrying charge on capital required for the whole system which would not be required for the system after severance) varying from \$2,023,000 in 1926 to \$1,972,000 in 1935. These losses were shown to reach a maximum of \$2,420,000 in the year 1928 and a minimum of \$1,718,000 in the year 1933.

The net annual losses having been determined, the next logical step was to translate these sums into a capital amount. This was done by two witnesses, Mr. W. J. Hagenah, of Chicago, and Dr. George L. Hoxie, of Los Angeles.

Mr. Hagenah's method of appraising the value of the San Francisco properties to the Great Western Company was, briefly, to determine from Mr. Moul-

ton's studies what permanent sum of money would be lost to the Company through expropriation and then to calculate the capital amount which would be required to produce that lost revenue when invested in securities of other public utilities having the same investment characteristics and being divided in the same proportion as the outstanding securities of the Great Western Company. By this method he found that, assuming a net loss of \$1,750,000 in 1924, a sum of \$30,900,000 would be required to provide proper compensation at that date. An auxiliary computation was also made, assuming payment of the award as of December, 1926, in which just compensation amounted to \$36,144,000, the difference resulting from the decreased purchasing power of money at the later date.

Dr. Hoxie, eminent Pacific Coast economist and consulting engineer, presented a second translation of lost earnings into a capital sum using a somewhat different method. Instead of confining himself to a one-year figure, Dr. Hoxie discounted the estimated losses in each future year to their 1924 value by use of a 6% interest factor and then added up the present worths of all these amounts. His figure for just compensation based on severance as of January, 1924, was \$33,051,000. Although it would appear that this method would result in the Company receiving a fixed and definite sum in exchange for what might be an uncertain future income, Dr. Hoxie declared that such was not the case. Every sale, he pointed out, is an exchange of capital in one form for capital in another form and not for mere money. In the present case, the compensation received is proposed to be invested in other securities chosen to give the same present return with similar future prospects and is thus an exchange of one

estimated prospect for another, under the probability that if one estimate be wrong the other will be wrong to an equivalent degree, relative relationships remaining unchanged.

The Segregation of Total Just Compensation. It will be noted that both of the methods discussed above result in a finding of just compensation in a single sum. Because of the statutory requirement directing severance damages to be separately appraised, the Company submitted several further studies segregating the total amount into what was termed "value of the San Francisco properties" and "severance damages," pointing out, however, that, regardless of the range of the complementary amounts making up the total, the over-all figure of just compensation must be a constant amount.

Mr. Gaskell S. Jacobs, consulting engineer for the Great Western Company, submitted three different methods for dividing total just compensation into its two constituent parts. These methods were based primarily upon a division of the loss in net incomes determined by Mr. Moulton into loss of income attaching to the business sought to be taken and that part whose equivalent is the severance damage to the business remaining. In this segregation the proration of what was termed the "power supply" expense to San Francisco and the remainder was the determining factor. In Mr. Jacob's first study this expense was prorated in proportion to the kilowatt hours sold in each part of the system. This method assigns only an average cost to the high value energy sold in San Francisco and thereby shows the San Francisco properties and business to possess a relatively high net income. In a second method Mr. Jacobs prorated the total power supply expenses to San Francisco and the remainder in

proportion to the relative amount of gross revenue produced by each part. In this instance, the service of highest value is charged the highest cost. Thus the San Francisco properties and business show a relatively low net income. In the third method equal weight was given to each of the first two methods.

The above calculations were prepared on two bases: first, over the period of years considered in Mr. Moulton's forecast studies, and second, for the single year 1924. In the first instance, Dr. Hoxie's discounting method of valuing future annual incomes was used and in the second, an adaption of Mr. Hagenah's one-year capitalization method at a 6% rate was used. Mr. Jacobs further corrected his figures for the depreciation liability attaching to the San Francisco properties, in the amount of \$960,000. This figure was determined for him by Mr. Carl J. Rhodin, the Company's valuation engineer.

By the intermediate method described above, namely, that which attached equal weight to the kilowatt hour sales and the gross revenue prorations of power supply costs, Mr. Jacobs found that by discounting future annual losses, total just compensation amounted to approximately \$32,000,000. Of this amount about \$19,000,000 attached to the San Francisco properties and business and about \$13,000,000 to severance damages. In the case of capitalization of the 1924 losses, Mr. Jacobs determined that of a finding of total just compensation of approximately \$29,000,000 about \$15,000,000 would attach to the San Francisco properties and about \$14,000,000 to severance damages.

The Market Value of the San Francisco Properties. As supplementary evidence on the value of the San Francisco properties, the Company also introduced exhibits showing the reproduction cost

new and depreciated of the physical properties, and the reproduction cost of the attached business, together with a study showing the capitalized value of the net income of the San Francisco properties, operating as a separate system.

At the outset of this proceeding, the engineers of the California Railroad Commission prepared a complete inventory and appraisal of all of the properties proposed to be condemned, this appraisal being based upon the reproduction cost theory. Although the Company's engineers were in substantial agreement with the Commission's direct reproduction cost figures, opinion differed considerably as to the overheads to be applied and as to the methods to be used for calculating depreciated costs.

Mr. Carl J. Rhodin, valuation engineer of the Company, was responsible for most of the exhibits relating to the physical property appraisal. His claim for final reproduction cost new for the physical properties was \$10,273,000 and the corresponding figure for the depreciated reproduction cost was \$8,618,000. Mr. Rhodin also submitted an extensive report on the reproduction cost of the business attached to the physical properties, which he found to amount to approximately \$4,000,000.

As indicative of the market value of the San Francisco properties on an earning basis, the Company submitted an exhibit through Mr. Jacobs showing the capitalized value of the net income that could be derived from the San Francisco properties operating separately. The results of these studies showed that the value of the San Francisco properties, operating as a separate system in 1924, would be approximately \$15,000,000. Mr. Alex Dow, President of the Detroit-Edison Company, testified, in this connection, that the value of the San Fran-

cisco properties, for consolidation with a larger system, would be at least 10% greater than the value of the same properties operating by themselves.

Severance Damages Separately Considered. As supplementary evidence on the amount of severance damages, the Company submitted a study comparing the estimated net income of the relict system with the amount that would have been earned on the basis of the rate of return of the whole system in the same year. Severance damages were then determined as the present worth of such deficiencies in net considered over a period of years in the future. The method outlined above was characterized by Mr. Jacobs as being entirely independent of any allocations of capital or costs, merely contrasting the conditions that would prevail in the severed system with those that would prevail in the entire system in the same year. By this method total severance damage was calculated at approximately \$16,000,000.

At the request of the Commission's engineers for severance damage estimates based on costs rather than income, the Company prepared a number of so-called "excess cost" studies, the most important of which were:

- (1) Excess capital and operating costs identified with the complete or partial non-use of submarine cables under San Francisco Bay, not included in the City's petition, but rendered practically valueless to the Company without the City load, were shown to aggregate almost \$800,000.

- (2) Damage to tie lines in Oakland and to equipment, building space and land in San Francisco, rendered either wholly or partially useless through severance, was shown to exceed \$800,000.

- (3) Due to the destruction of the diversity existing between the San Francisco load and that of the remainder and because of the burden of support of excess capacity, it was demonstrated that the hydro-electric and transmission system of the Company would

be damaged to the extent of approximately \$16,000,000.

(4) It was shown that the general administrative costs of conducting the future business of the severed system would exceed the cost of serving that same business as a part of the whole system by an amount whose present worth totals nearly \$800,000.

(5) Due to the deferred use of the Company's water power developments, it was shown that these rights would suffer a reduction in value of almost \$7,000,000.

(6) Based upon Mr. Mitchell's estimate of a $\frac{1}{2}\%$ increased cost of money due to severance, it was shown that the present worth of the corresponding additional interest charges on future capital investments would vary from \$4,000,000 to \$7,000,000, depending on the rate of growth, capital ratios, etc.

None of the above sums, it was pointed out, were additive, one to the other, nor to any figures of reproduction cost of the properties proposed to be severed. Consideration of all these elements, however, was claimed to be of value for the purpose of measuring some of the causes contributing to the impairment of earning power.

Effect of Expropriation and Payment of Compensation in Amount Suggested by City. From a consideration of the evidence submitted by witnesses for the City, it was readily apparent that its conceded compensation award would not exceed \$10,000,000. Using that sum, therefore, as a starting point, Mr. Jacobs made a detailed analysis of the financial condition of the severed system during the period 1924-1935, assuming the same figures of operating revenues and expenses as were derived in Mr. Moulton's forecast studies.

The results of Mr. Jacobs' calculations indicated that an award of only \$10,000,000 would reduce the Company to a state of virtual ruin. In none of the 12 years studied was there sufficient income to pay common stock dividends, in nine of the years current income was insufficient to pay preferred dividends

and in six years current income was insufficient to meet depreciation charges. It was further shown that during a greater part of the period no bonds could be issued, and money for capital additions could only be secured by note issues, \$22,000,000 being required from that source. In the 12-year period investigated, the surplus of the Company was shown to have been depleted by over \$5,000,000 without regard to the normal growth of this item, had no severance occurred. All of the above results were predicated upon a money rate of 7% for unsecured notes and $5\frac{1}{2}\%$ on bonds. Because of the large accumulation of unpaid preferred stock dividends, no new capital funds could be obtained from further stock financing.

Following Mr. Jacobs, Mr. Harry H. Fair, San Francisco investment banker, testified that, assuming the correctness of Mr. Jacobs' study, in his opinion the Company would not be able to raise money at the rates used by Mr. Jacobs, it being doubtful indeed if they could obtain credit at all except through the help of a parent company. And even if such financing could be effected, Mr. Fair declared, the outstanding securities remaining (after the application of the hypothetical \$10,000,000 award to the retirement of bonds) would shrink in market value by about \$18,550,000.

Other Considerations. In corroboration of the assumption that the present rates are fair and reasonable and not subject to material change during the forecast period, Mr. Rhodin introduced an exhibit showing that the rate of return during the 12-year period, based on reproduction cost less depreciation, and excluding going value and water rights, would average around 7%. A parallel study for the system, after the assumed expropriation of San Francisco,

indicated an average rate of return somewhat under 5%.

The Company also presented evidence through Mr. Moulton, relating to the use of the San Francisco properties for the service of outside communities. In this connection, Mr. Moulton declared that the severance of the San Francisco properties, which includes the Company's primary stand-by plant, would reduce by two-thirds the ratio of stand-by capacity to peak load, that the use of the submarine cables for power transfer to the Oakland side of the Bay would be forever lost and that the San Mateo County consumers (on the peninsula south of San Francisco) would be entirely cut off from the lines of the relict system after severance.

Summary of the City's Evidence

Theories. The claims of the City of San Francisco in this proceeding were based primarily upon the principles enunciated by Dr. William F. Durand, Professor Emeritus of Mechanical Engineering at Stanford University. Just compensation, in the opinion of Professor Durand, was to be determined by adding together the market value of the property taken and severance damages to the property remaining, these two items to be separately calculated according to certain principles and theories outlined below.

Briefly stated, Professor Durand's method for determination of the market value of the San Francisco properties was to take a rate-base for these properties, multiply that by the standard rate of return allowed by the Commission, irrespective of the actual higher earning capacity, and divide the product by the rate of interest that would be acceptable to a prospective purchaser. The resulting amount would represent a sum which the average buyer would be willing to pay in the open market for

the property. In this concept of market value, Professor Durand pointed out, going value would automatically be included and could be separately determined by deducting the physical property value from the total.

Severance damages, according to Professor Durand, should include only those items for which the City was directly responsible, such as the destruction of the usefulness of the underbay cables, and the temporary idleness of the hydroelectric plants left without load because of expropriation. For all elements of loss due to destruction of diversity, either electrical or in the administration of business, Professor Durand urged that the City was not responsible. All additional costs of that nature resulting from severance should be borne by the remaining consumers of the Company, through rate increases, if necessary.

The Market Value of the San Francisco Properties. In the absence of a fixed rate-base for the San Francisco properties as a unit, the actual procedure followed by the City in the determination of market value differed somewhat from Professor Durand's original concept. The total was determined, not as a single amount, but as the sum of the depreciated reproduction cost of the physical property plus going concern value, each separately calculated.

The City witnesses were in substantial agreement with the reproduction cost new appraisal prepared by the Commission's engineers, but differed greatly as to depreciated amounts. The final figures claimed by Mr. Ellis and Mr. Butler, the City's engineers on this phase of the case, were \$9,489,000 for reproduction cost new and \$6,390,000 for reproduction cost depreciated.

The going concern value attaching to the San Francisco properties was separately determined by Mr. E. F.

Scattergood, chief engineer of the Bureau of Power and Light of the City of Los Angeles. Mr. Scattergood testified that, after considering the various elements affecting the going value of the properties, particularly the imminence of municipal condemnation or competition, he arrived at a figure of \$530,000 as an allowance for going concern value.

Severance Damages. The City's calculations of severance damages were based primarily upon the principles enunciated by Professor Durand and applied by Mr. Butler. Mr. Butler's showing in this matter was similar in form to the so-called "excess cost" studies presented by the Company, omitting, however, all damage arising through destruction of diversity, and differing considerably in the treatment of the burden of excess capacity. His exhibit indicated severance damage allowances distributed as follows:

1. Submarine Cables and Oakland Tie Lines.....	\$746,000
2. Electrical Equipment in San Francisco.....	271,000
3. Hydro Production and Transmission System.....	1,797,000
Total Severance Damages.....	\$2,814,000

These amounts, it was pointed out by Mr. Butler, reflected the present worth of the excess costs to be borne by the remainder system until its peak load had grown to that of the entire system at the time of severance, assuming that the remainder system had never been a part of the entire system.

As collateral evidence, City witnesses Scattergood and Butler both testified that in their opinion the system remaining after severance would be operating in a prosperous territory and would be able to earn a fair return under rates that the consumers in that territory could afford to pay.

The City also presented evidence (as rebuttal to the Company claims of ex-

cess money cost) to show that the cost of money to the San Joaquin Light & Power Corporation did not exceed that to the Great Western Company, including its San Francisco business.

Summary of the Evidence of the Commission's Engineers

As previously noted, the engineering staff of the California Railroad Commission made a complete inventory and appraisal of the properties included in the petition, limiting themselves, however, to consideration of physical property costs only, excluding intangibles, going concern value and severance damages. The following figures were submitted:

Reproduction Cost New.....	\$9,489,000
Reproduction Cost New Less Depreciation:	
Sinking Fund Method.....	7,640,000
Straight Line Method.....	6,734,000

Mr. Thelen, Commission engineer, advocated the use of the sinking fund method in connection with depreciation.

Summary of the Evidence of the California Farm Bureau Federation

The proposal of the City to dismember the Company's system was actively opposed by the representatives of the rural communities of the State, who saw in the event of an insufficient severance award the likelihood of increased rates or curtailment of service, or both, to the farming communities.

Mr. J. J. Deuel, representing the California Farm Bureau Federation, in his opening statement, said in part:

"The electric service of today requires coordination of widely separated generating plants, of water power and of steam power, connected with each other, not only connected to large cities, but having widespread inter-connected networks covering the back country. . . . The business requires that the widely varying demands of many dif-

ferent classes of load shall be gathered together and fed from a common pool. In no other way can a reasonably uniform demand be put upon the generating plants and the transmission lines. It is axiomatic that without uniform loads, electric service costs soon become prohibitive to most industries.

. . . We regard the proposal involved in the present proceedings as a step backward. It is an effort to split apart, rather than to consolidate. It is a policy that, on an average, means higher rates and less efficient service. The proposal is anti-social and against the interests of the State."

Mr. L. S. Wing, engineer for the Farm Bureau, submitted three exhibits wherein he determined the amount of the "severance damage award required for the protection of remaining consumers." Mr. Wing's method was similar in principle to the method of calculating deficiencies in net earnings available for return sponsored by Mr. Jacobs, omitting, however, all consideration of damage to property left non-operative after expropriation. His conclusion as to severance damages so calculated was \$13,547,000. In a second study Mr. Wing determined what he termed "minimum" damage by finding the present worth of the various annual amounts by which the relict system failed to earn a 7.6% return on his estimate of historical rate-base. By the employment of this

method he derived a figure of \$5,629,000. His third study was similar to the first, but made use of hypothetical revenues assumed to yield a 7.6% return on the whole system before expropriation. Mr. Wing's computation of severance damages under this last method was \$12,769,000.

Conclusion

It is thus apparent that the claims of the Company and City are wide apart, both as to theory and as to results. In the opening briefs submitted on June 15, 1928, the Company asked for an award of "not less than \$30,000,000;" the City named the specific sum of \$9,306,537. In the parallel case of the Pacific Gas & Electric Company, the differences were even greater, the claims of the Company and City being \$67,000,000 and \$18,894,000 respectively.

Because of the importance of the issues involved, the decisions of the California Railroad Commission in these proceedings will be awaited with great interest by all those concerned with the economic problems of public utilities. The decision in the Great Western case, which is expected about the time this article goes to press, will be reviewed in a subsequent issue.

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SOME PROBLEMS OF STATE CONTROL OF PUBLIC UTILITY HOLDING COMPANIES

By E. W. MOREHOUSE

“THE operations of the holding company have to be taken more or less on faith.”¹ This editorial comment from a much-quoted newspaper expresses well the current position of utility patrons. It also reflects the present status of public utility holding companies in our regulatory system, and the changing character and organization of the gas and electric industries—from an independent, local plant basis to a centrally managed, “chain-store” system basis.² In the face of these

changes, the opinion seems to be spreading³ that our state utility commissions have not adapted themselves to new developments and that, if the interests of consumers or investors, or both, are to be protected adequately and effectively, the present system of utility regulation needs overhauling.⁴ A number of proposals in this direction have been made despite the prevailing sentiment against governmental interference in business. And now the state utility commissioners themselves, supporting their Committee

¹ *Springfield (Mass.) Weekly Republican*, Dec. 20, 1928.

² For descriptions of some of the activities of holding companies from various points of view, consult the following: M. G. Glaeser, *Outlines of Public Utility Economics* (Macmillan, 1927), pp. 88-101; W. E. Lagerquist, *Public Utility Finance* (A. W. Shaw Co., 1927) pp. 33-58; W. Z. Ripley, *Railroads; Finance and Organization* (Longmans-Green, 1915), Ch. XIII; W. Z. Ripley, *Main St. & Wall St.* (Little, Brown & Co., 1927); A. S. Dewing, *Financial Policy of Corporations* (Ronald, 1926) Bk. IV, Ch. V; Henry G. Bradlee, “Centralized Public Utility Management” (Stone & Webster, Inc., 1921) pamphlet; Federal Trade Commission, “Control of Power Companies,” *Senate Document No. 273* (1927); Edward B. Lee, “The Progress of the Electric Power and Light Industry with Special Reference to Superpower and the Holding Company” (pamphlet), reprinted from *Boston Evening Transcript*, June 3, 1926; Samuel Insull, “Public Utility Facts,” *The Union Trust Co. of Pittsburgh* (1925); C. O. Ruggles, “Problems in the Development of a Superpower System,” *Harvard Business Review*, Jan., 1924; “The Holding Company for Ideal Investment” (pamphlet), Henry L. Doherty & Co.; George T. Buckingham, “The Holding Company” (pamphlet), The Electric Association, Chicago (1928); John H. Pardee, “The Holding Company in Public Utilities: Its Advantages and Dangers,” *Proceedings, Academy of Political and Social Science*, Vol. XI, pp. 148-155; M. C. Waltersdorf, “The Holding Company in American Public Utility Development,” *36 Economic Journal* (London) 586-597 (1926); Halford Erickson, “Comments on the Forces Which Lead to Such Consolidations as Those Represented by Holding Companies,” *Proceedings, National Association of Railroad*

and Utilities Commissioners (1927), pp. 125-143; Maurice R. Scharff, “The Public and Their Utilities,” *142 Atlantic Monthly* 398-407 (1928); F. X. Welch, “The Holding Company,” *P. U. R.*, 1928, C. 4, pp. 12-19; see also *P. U. R.*, 1928 A 4, pp. 19-21.

³ Although a note such as this cannot probe the causes of the current popular interest in the utilities, certain major influences deserve passing mention. The rapid and enormous expansion of the electric power industry naturally brought it into prominence, aided and abetted by the public relations activities of the companies themselves. That some of these public relations officials were too zealous and over-reached themselves became a matter of record in the present Federal Trade Commission inquiry, which certainly has not caused any subsidence of popular interest. Finally, among the major influences must be reckoned the persistent advocacy of public ownership by various groups, including now some of the municipal officials in certain mid-western states. See 23 *The Municipality* (Wisconsin) Dec., 1928. The chief stimulant, however, has doubtless been the spectacular growth of the industry, which could hardly fail to win public attention apart from the desires of company officials to get publicity for financial or other purposes.

⁴ H. S. Raushenbush and H. W. Laidler, *Power Control*, New Republic (1928); *Report, Giant Power Survey Board*, Commonwealth of Pennsylvania, 1925; Philip P. Wells, “Public Regulation of the Holding Company,” *Proceedings, Academy of Political Science*, Vol. XI, pp. 708-712. It should be recognized that the “overhauling” may consist of expanding the scope of regulatory powers, state or federal, or improving the performance of existing agencies under existing or uniform statutes. As will be noted, the latter alternative is subordinated in the discussion which follows.

on Capitalization and Intercompany Relations, have taken affirmative action in their 1928 convention.⁵ Because the report of this Committee is presumably based on the experience of the commissioners, it deserves a reading and a careful examination of the specific recommendations. The most significant parts of the report deal with the need for regulating holding companies and the powers thought necessary for effective control by existing state agencies.

At the outset the Committee challenges attention by asserting that the survival of private ownership and operation under state regulation is at stake. If regulation of utilities is ineffective, "ammunition" is given to advocates of federal regulation or public ownership. The present authority of the commissions is restricted to only "limited and indirect" control. It extends "only to an examination of operating expense accounts of the subsidiary in an effort to determine whether or not the charges made by the holding company to the subsidiary are just and proper operating expenses,"⁶ and in some cases even this information is in large part withheld. "The local State Commission has no authority to investigate security issues by the holding company, or control its practices in any manner."⁷

Illustrating the impotence of the state commissions, the Committee refers to

the various telephone rate cases in which the license contract or division of toll revenues between the American Telephone and Telegraph Company and its subsidiaries was involved.⁸ Our highest court has declared that amendment of this contract by a commission is usurping the functions of management which cannot legally be done except after a clear showing of fraud or undue influence on the part of the parent company.⁹ The American Telephone and Telegraph Company has apparently interpreted this statement as warrant for refusing in some cases to disclose information regarding the contract requested by commissions.¹⁰ This defiance seemingly has irritated the commissioners and "threatens the future of state regulation of privately owned and operated utilities and furnishes ammunition for the public ownership advocates."¹¹

Nevertheless, the Committee takes pains to mention the undoubted public benefits from mass production through centralized management and operation of utilities.¹² The difficulty is that abuses accompany these benefits, and "in many cases the public has received no benefit whatever from the economies effected." The particulars of the Committee's indictment may be summarized as follows:

pp. 21-22, 156-157, 217, 297-298; 1927, 16-17, 155-157, 307.

⁵ *Missouri ex rel. Southwestern Bell Telephone Co. v. Public Service Commission*, 262 U. S. 276, 288 (1923); *Houston v. Southwestern Bell Telephone Co.*, 259 U. S. 318, 323 (1922). See also *Chesapeake & Potomac Telephone Co. of Baltimore v. Whitman*, *supra* n. 8; *Idaho Power Co. v. Thompson*, 19 F. (2d) 547, 575 (1927).

¹⁰ *Report of Committee on Capitalization, etc., op. cit.*, p. 2; see especially the treatment of this problem by the California Commission illustrated by *Re Southern California Telephone Co.*, P. U. R. 1925 C 627, 664ff, 667.

¹¹ *Ibid.*

¹² A very recent instance is found in *Re Consolidated Gas Co. of New York* (N. Y.) P. U. R. 1928 E 19 with which consider *idem*, P. U. R. 1928 E 478.

⁵ *Report of the Committee on Capitalization and Intercompany Relations, National Association of Railroad and Utilities Commissioners* (1928).

⁶ *Report, op. cit.*, p. 1.

⁷ *Ibid.*

⁸ *Re New York Telephone Co.* (N. Y.), P. U. R. 1923 B 545, 557-589; *Re Wisconsin Telephone Co.* (Wis.), P. U. R. 1925 D 661; P. U. R. 1927 A 581; *Bevier Telephone Co. v. Macon Telegraph Co.* (Mo.), P. U. R. 1926 A 545; P. U. R. 1926 C 57-58; *Chesapeake & Potomac Telephone Co. v. Whitman*, (U. S. Dist. Ct.) 3 F. (2d) 938, 957-958 (1925), P. U. R. 1925 D 407; P. U. R. 1924 C 65-66 and cases noted; also consult P. U. R. Annual Index 1925, pp. 18, 19, 156-157, 313-314; 1926,

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- (1) Holding companies have withheld information necessary to judge the fairness of payments made by subsidiaries to the holding and/or management companies for services¹³ rendered by the latter.¹⁴
- (2) Holding companies have retained for their stockholders an unreasonable share of the economies of centralized financing,¹⁵ construction, accounting, engineering, purchasing, and other managerial services, instead of passing a reasonable share to subsidiaries and thence to consumers.
- (3) Holding companies have paid inflated prices for properties,¹⁶ in the scramble of competing holding companies,¹⁷ and these prices have been made the basis of issues of holding company securities, to the detriment of innocent purchasers.¹⁸
- (4) Through financial pyramiding a small investment in the voting stock of a holding company yields control of a large investment in subsidiary companies.¹⁹

¹³ For descriptions of the services rendered consult Erickson, *op. cit.*, *supra* n. 2 at 131 ff.; *Re New York Telephone Co.*, *supra* n. 8, at 557 ff.

¹⁴ *Proceedings*, National Association of Railroad and Utilities Commissioners (1927), pp. 145 ff., 153.

¹⁵ *Cf. Idaho Power Co. v. Thompson*, *supra* n. 9.

¹⁶ E. g. *In re Electric Public Utilities Company*, 18 P. S. C. (Md.) 118 (1927); *Electric Public Utilities Co. v. West*—Md.,— 140 Atl. 840, P. U. R. 1928 C 3; *Electric Public Utilities Co. v. Public Service Commission* (Maryland Circuit Court No. 2 of Baltimore City), P. U. R. 1928 E 854; Raushenbush and Laidler, *op. cit.*, pp. 124 ff., pp. 223-224.

¹⁷ See, for example, *Re Erie Power Corporation* (N. Y., 1925) P. U. R. 1926 A 707; *Proceedings*, National Association of Railroad and Utilities Commissioners (1927), pp. 143-144, 151, 153 ff.; *Re New York Power and Light Corporation* (N. Y.) P. U. R. 1928 E 781: "While not of record in this case, it is common knowledge that there is at present in the state of New York, a competitive struggle between several large utility corporations for the acquisition of the property and franchises of single electric distributing units. This competition seems to have induced the offering of prices for these single operating units beyond the possi-

These "abuses" are well known and have been recognized by the commissioners for some years. What has agitated these officials to take a positive stand seems to be the "adverse public sentiment aroused against holding companies" and the resulting "trend toward Federal control" or public ownership, neither alternative being favored by the commissioners.²⁰

The corrective suggested by the Committee is an extension of state commission jurisdiction along two lines. "State Commission laws should be amended to give jurisdiction to all state commissions over security issues of utilities in their respective states, and the state commissions should be given authority to require the production of all records of the outside holding company which bear upon the relationship of that company to the local utility."²¹

bility of any reasonable return thereon. Such a condition is certainly not in the interest of the public, and it is hard to conceive how it is in the interest of the stockholders of the companies making the offers. Probably it is not the duty of this Commission to act in the interests of the stockholders who are represented by boards of directors selected by them. It is, however, clearly the duty of this Commission, under §70 of the Public Service Commission Law, to make thorough examination of the facts and protect the interests of the public, and where the price to be paid is greatly in excess of the fair value of the property represented by the stock, it is our opinion that the public interest requires the disapproval of the application, unless it be shown that a good and sufficient reason for the granting of the petition exists independent of the fair value of the property and that the consuming public will be benefited thereby."

¹⁸ See, for example, *Re Penn Water Service Co. et al.* (Penn.) P. U. R. 1927 E 656 at 663.

¹⁹ Scharff, *op. cit.*; W. Z. Ripley, *Main St. and Wall St.*; Raushenbush and Laidler, *op. cit.*, pp. 58-66. *Cf. Re Penn Water Service Co. et al.*, *supra*, n. 18, at 661.

²⁰ See also H. H. Corey, "Regulation of Interstate Utilities," 14 *N. E. L. A. Bulletin* 667-669 (1927); J. M. Thompson, "State Jurisdiction of Electric Utilities," P. U. R. 1928 E 1, 14-23.

²¹ *Report*, Committee on Capitalization, etc., *op. cit.*, p. 4. In addition the Committee endorsed and recommended the passage of uniform state laws in line with the Wisconsin water power statutes. See statement by Chairman Lewis E. Gettle, Hearings on S. Res. 83

(Continued on page 22)

The Committee recognized that such statutes necessitate defining holding companies as public utilities. They appreciate that mere legislative fiat, without basis in fact, cannot transmute a private corporation into a public utility. Nevertheless, the Committee expressed the belief that "where the holding company and its subsidiaries affect the control and activities of the operating company, they may, and should, be considered as public utilities in fact."²² Moreover, the hope is expressed that holding companies will not resist this change, on the theory that strengthening state regulation will forestall more dire alternatives.

Debate will doubtless arise over the proposal to control security issues. This is recognized by the Committee. The fact that but half of the states regulate utility security issues evidences the doubt whether the state, after protecting the consuming public as much as possible, should go further and try to protect the investing public "from speculative and unsafe securities" of either or both operating companies and holding companies. Even when commissions do have authority over security issues of operating companies, a loophole in the investors' protective shield is found. "The public may still purchase the securities of a holding company under the impression that they are authorized and approved by the State Commission, when in fact they are not."²³ With the existing doubt whether a state should, if it could, soften the doctrine of *caveat*

emptor of holding company securities, the Committee takes the position that the indispensable minimum, for "effective regulation of rates and services and the determination of the rate-base," is some means of preventing holding companies from intervening "and by duplicate charges or the equivalent thereof adversely affecting the reasonableness of the value and the rates."²⁴ So far as the published Committee report discloses, the particular means recommended is a jurisdictional statute enabling commissions to have access to holding company records.

Without the record of the full deliberations of the Committee, it is somewhat hazardous to pass judgment on the merits of its published report. But with this reservation a few brief comments deserve mention.

I. The Indictment

Financial pyramiding in itself is not necessarily objectionable, except as it makes easier the creeping in of abuses and sharp practices,²⁵ directed against passive or minority stockholders, creditors, and ultimate consumers of utility services. The essential problem is whether this device is used to sidestep responsibilities; if so, some brakes may be needed, although the commissioners' proposals do not touch this pyramiding directly.

The commissioners apparently feel that the menace of holding company acquisition of properties at inflated prices²⁶ concerns exclusively or chiefly the interests of investors, since rates paid by consumers are ordinarily based

(Footnote 21 continued from page 21)

(The Walsh Resolution), pp. 35-46 (1928). Regarding access to holding company records, cf. *Sixth Annual Report*, New York Public Service Commission (1926), pp. 13-14, and Senate Bill No. 1301, New York, February 27, 1928; Mass. Acts 1913, c. 509; G. L. 1921, c. 182, secs. 3, 4, 7, 8; Acts 1926, c. 290; proposed amendment to Maryland, *Ann. Code*, Art. 23, sec. 350 A.

²² *Report*, Committee on Capitalization, etc., *op. cit.*, p. 4.

²³ *Ibid.*, p. 5.

²⁴ *Ibid.*, pp. 5-6.

²⁵ Ripley, *Main St. and Wall St.*, *op. cit.*

²⁶ *Re Connecticut Light and Power Co.* (Conn., 1927) P. U. R. 1928 B 263, 271-273; cf. cases cited in n. 16, *supra*.

on valuations of assets. Nevertheless, some commissions feel that danger to consumers' interests lurks²⁷ in the possibility that through judicial review these high prices may find their way into rate-base calculations.²⁸ An additional threat to consumers, seemingly not considered by the Committee, is involved in the twin possibilities: (1) If high purchase prices, representing expected economies from integration, are made the basis of holding company security issues in a steeply pyramided structure, a slight failure in realizing expected economies might cause a large deficiency in the apex company earnings;²⁹ (2) To protect investors and the company's credit, in such a contingency the temptation would exist to direct a policy of deferring maintenance, renewals, depreciation charges³⁰ and extensions so as to lower service standards before commissions or consumers could take effective action. By this practice also, it is possible to shift the burden of maintaining assets unimpaired from present to future consumers. A variation of this procedure arises from the pooling of strong and

weak operating companies. If, on account of competition with other holding companies, too high prices are paid for an operating property, the burden might be adjusted to fall, not on the consumers of that operating company, but on innocent consumers in another territory.³¹

Regarding the economies of concentrated control, operation, and management, the Committee seems to feel that the chief abuse is the retention of these benefits by holding company stockholders for themselves instead of passing on a fair share of such benefits to consumers. The Committee did not question, as it might, the validity of some of the claimed economies. We still lack adequate information on this point but the tendency to point to economies in massed electric generation as an illustration of economies generally obtained³² raises a suspicion of exaggeration, when we consider added transmission expenses in system operations and the slight possibilities of saving in distribution expenses.³³ Nevertheless, here is the nub of the problem of holding company regulation. What role can and should the state

²⁷ That bankers also recognize the relationship between security issues and rates for service is witnessed by the following:

"A proper and economical financial structure . . . has a bearing on rates because uneconomic financing, extravagant issues of securities, as well as extravagant prices paid for properties bear directly on rates and then begins the vicious circle of rates, capitalization and decisions by commissions. If your financial structure is not sound, your rate structure is not sound and your whole industry is thrown into jeopardy." (T. T. Whitney, Jr., "Relation of the Banker to the Public Utility," 44 *Stone & Webster Journal* 26, at 30 (January, 1929)). See also *Electric Public Utilities Co. v. Public Service Commission*, P. U. R. 1928 E 854 at 862.

²⁸ Particularly if the courts generally approve the principle adopted by the Maryland Supreme Court in *Electric Public Utilities v. West*, *supra* n. 16, that the Commission must show that the sale of operating company securities to a holding company "would work to the public detriment," not merely that the transaction might not benefit the public. To circumvent application of this principle the Maryland Commission has

recommended a bill in the form of an amendment to Bagby's *Ann. Code*, Art. 23, sec. 394 A, placing the burden of proof on the petitioner in any proceeding to obtain Commission authorization. But cf. *Re Erie Power Corp.*, *supra* n. 17, *Re Penn Water Service Co. et al.*, *supra*, n. 18, *Re Genesee Valley Gas Co., Inc.* (N. Y., 1926) P. U. R. 1927 B 600; *Re Southern Indiana Tel. & Tel. Co. et al.* (Ind., 1926) P. U. R. 1927 A 434; *Re Central Power and Light Co.* (Mo.) P. U. R. 1922 D 734; *Re Associated Telephone Co.* (Md.) P. U. R. 1928 D 376, 380.

²⁹ Disregarding the possibilities of (1) diverting unused surplus of subsidiaries to the parent company, (2) inflating the capital account of subsidiaries for a rate-adjustment; (3) garnering sufficient revenues to make good the deficiency in other indirect ways depending on the ingenuity of controlling officials.

³⁰ *Re Lockport Gas & Electric Light Co. and Lockport Light, Heat and Power Co.* (N. Y.) P. U. R. 1917 F 866.

³¹ *Re Penn Water Service Co.*, *supra* n. 18.

³² Erickson, *op. cit.*, at 136-137.

³³ The Report of the Special Committee on the Generation and Distribution of Electric Power, National Association of Railroad and Utilities Commissioners (1928) contains interesting "indications" on this point.

commissions be authorized to play in order to assure a fair sharing of the real economies of integration among (1) consumers in different communities, (2) investors in utility and holding company securities, and (3) the owners of the dominant company? In the writer's opinion, this is the present frontier of regulation.

II. The Remedies

So far as the principle of uniformity of legislation is concerned, little theoretical objection can be offered,³⁴ unless it be that experimentation along different lines is desirable. Certainly the holding companies should not be heard among the objectors, for their difficulties in meeting the diverse requirements of the several states in which their subsidiaries operate are well known. There may be some question, however, whether the duplication of Wisconsin's statutes controlling water power³⁵ or the extension of securities regulation in states not now granting this power will materially advance the supervision of holding companies. Will the universal control by state utility commissions over the

amount, purpose and terms of issues by operating companies adequately reach the possible abuses in connection with holding company financing?³⁶ The security owners' association³⁷ and advocates of holding companies³⁸ feel that present control of issues of operating companies by utility commissions and of all companies by "blue sky" laws is adequate to protect consumers and investors; and the informal control of underwriting investment bankers is an effective supplement.³⁹ The Committee's implied assumption that consumers' interests will be effectively safeguarded merely by extending present control to all states is certainly open to question for reasons outlined above. And the Committee is probably wise in offering no specific suggestion for safeguarding innocent purchasers of holding company securities; for it is extremely doubtful whether the states could constitutionally extend their jurisdiction over issues of securities by foreign corporations,⁴⁰ and it is problematical whether mere power to prohibit sale of such securities within a state would reach abuses. Moreover, in so far as states do exercise some control over security sales within their

³⁴ Attempts at uniform legislation seem to have a conservative tendency, striking an average of existing statutes. The Uniform Public Utilities Act, sponsored by the National Conference of Commissioners on Uniform State Laws, and adopted at the 1928 meeting of the American Bar Association, does not appear to cover the regulatory problems here discussed. Perhaps, however, the separate Public Utility Securities Act will deal with certain aspects of the problem. See H. I. Sawyer, "Uniform Public Utilities Act," P. U. R. 1928 E 3, 11-20.

³⁵ *Supra*, n. 21.

³⁶ Without altering the financial set-up of any one operating subsidiary, a holding company may issue debentures or other securities of its own, based on expected, but not realized, appreciation of its equity in the subsidiary. This may or may not be an over-issue, depending on future contingencies. At least, the investors in securities of the operating companies are not directly concerned unless they happen also to hold securities of the parent company. And the commission which controls operating company issues cannot touch the rela-

tions of the parent company to its security holders, except through paring down the rate of return allowed on the parent company's equity in the operating subsidiary. Even if this were done, the holding company ordinarily has other ways of building up its income, such as charges to subsidiary company operating expenses for services rendered by management companies, obtaining money in behalf of a subsidiary at a lower rate than is charged the subsidiary, etc.

³⁷ *The Security Owner* 9 (November, 1928), published by the National Association of Owners of Railroad and Public Utility Securities.

³⁸ Erickson, *op. cit.* at pp. 148-149.

³⁹ *Ibid.*, p. 153; and see *Electric Public Utilities Co. v. Public Service Commission*, P. U. R. 1928 E 854, 860-861.

⁴⁰ *Public Service Commission v. Union Pacific R. R. Co.*, 271 Mo. 258 (1917); *Missouri Pacific Ry. Co. v. Public Utilities Commission*, 292 Ill. 427 (1920); *Sierra Power Co. v. Railroad Commission*, — Cal. — (Sup. Ct. Calif.) Nov. 10, 1928. Cf. *Peninsular Power Co. v. Secretary of State*, 169 Mich. 595 (1912).

jurisdiction, the effectiveness of such regulation depends on uniform action by all states in each case.

The Committee's indispensable minimum is open to at least two types of objections, one legal and the other practical. To obtain access to holding company records, it appears necessary to include such companies within the public utility concept.⁴¹ The most usual tests of this category do not seem to apply to these companies, principally because their relations to consumers are at best only indirect,⁴² via the corporate fiction of a subsidiary operating company.⁴³ Moreover, even if this hurdle were surmounted, jurisdictional and constitutional difficulties remain. Does a state's

power extend beyond the boundaries over the books of a foreign corporation?⁴⁴ And if these foreign holding corporations were held to do business within a state, would such a requirement be regarded as a "fishing" expedition and fall under the doctrine of unconstitutional conditions?⁴⁵ In that connection, the fact that many holding companies have organized separate corporations to perform various services for the subsidiaries introduces additional complications.⁴⁶

But even if the records of the holding and/or management companies were opened to the commissions, would the necessary information be obtainable in practice without additional powers? Where one holding company services a number of operating properties lo-

⁴¹ G. H. Robinson, *Cases and Authorities on Public Utilities* (Callaghan & Co., 1926) and Robinson, "The Public Utility Concept," 41 *Harvard Law Review* 278 (1928). The United States Supreme Court holdings on this subject are conveniently gathered in *Public Utilities and Carriers Service*, United States Supreme Court, ed. by Lilienthal and Rosenbaum, for Commerce Clearing House, Inc., of The Corporation Trust Company.

⁴² The holding company itself does not serve consumers nor has it any contractual relations with them. The franchise to use public streets is not in the name of the holding company, ordinarily; nor does it usually operate generating stations or distribution lines. But see *Ohio Mining Co. et al. v. Public Utilities Commission*, 106 O. S. 138 (1922).

⁴³ As the courts in certain cases have "pierced the corporate veil," (See I. Maurice Wormser, *Disregard of the Corporate Fiction and Allied Corporation Problems* (Baker, Voorhis & Co., 1927) and Bryant Smith, "Legal Personality," 37 *Yale Law Journal* 283 (1928), is it not possible from the economic point of view to bring the holding companies within the public utility category? Who directs the policy of the operating company? Who are the owners? The real contracting parties as between the consumers and the operating company are the consumers and those who own and direct the business. In the economic sense the stockholders, whether natural or artificial persons, are responsible parties to the transaction. (*Re Citizens Telephone Co. of Columbus et al.* (Ind.) P. U. R. 1924 E 835, 842.) And this may be the legal view under some circumstances. (*Ohio Mining Co. et al. v. Public Utilities Commission*, *supra* n. 42.)

⁴⁴ Some states have required the submission of fairly ample records in connection with the admission of securities of foreign corporations for sale in the state under "blue sky laws." But the problem here differs from state control of the sale (or issuance) of securities of foreign corporations. Can a state require a foreign

corporation, engaged in furnishing managerial services to a domestic public utility, to submit the records and accounts of its dealings with the domestic corporation? Does service of this nature constitute "doing business" within the state, for which the state may require a license conditioned upon producing such records as the commission deems important? Even though a foreign corporation controlling domestic utilities through stock ownership be declared outside the public utility category, a foreign management company may be within this classification and subject to state laws governing domestication of such corporate activities. If foreign management companies are not public utilities, the state's power to force commission access to their books seems dubious in view of the doctrine of unconstitutional conditions, the interstate commerce clause, and possibly other constitutional defenses. On the general subject, see George G. Reynolds, *The Distribution of Power to Regulate Interstate Carriers Between the Nation and the States* (Columbia University Press, 1928), pp. 261 ff.; as to federal power in investigations, see Milton Handler, "The Constitutionality of Investigations by the Federal Trade Commission," 28 *Columbia Law Review* 708-733, 905-938 (1928), and the objections of the Electric Bond and Share Company in the present Federal Trade Commission investigation, *U. S. Daily*, October 18, 1928.

⁴⁵ G. C. Henderson, *The Position of Foreign Corporations in American Constitutional Law* (Harvard University Press, 1918), Ch. VIII; Lilienthal and Rosenbaum, *Public Utilities and Carriers Service*, *op. cit.*, *supra* n. 41, §65.435.

⁴⁶ See note 44 above. Also Federal Trade Commission, *Control of Power Companies*, *op. cit.*, *supra* n. 2; *So. Ohio Power Co. v. Public Utilities Commission*, 110 O. S. 246, 143 N. E. 700 (1924).

cated in various states and requiring varying amounts of such service, the problem of finding the expense of serving only one subsidiary involves the delicate task of apportioning many joint costs. That cost apportionments require many arbitrary decisions is notorious. Yet in determining the reasonableness of a management fee, this process apparently has to be gone through,⁴⁷ unless the fee is judged by the value-of-service principle⁴⁸ in the sense of what it would cost the operating company, if independent,⁴⁹ to perform or obtain equivalent managerial services. Applying the cost-of-service principle, the cost apportionments necessary for a fair and precise calculation of the burdens chargeable to consumers in one community, zone or operating area would involve a rather searching investigation of all operating expenses of the servicing companies and the relations of those companies to subsidiaries operating in other communities or areas of the same or different states.⁵⁰ Under these circumstances, the problem is that of system

cost-finding⁵¹ and rate-making in addition to local rate-making. Is the commission of any one state equipped to supervise "system rates" in which local peculiarities are all-important?

At the present time, however, the problem of administrative capability is secondary to that of legal capacity. On the latter problem, the opinion of Mr. Justice Stone in the *United Fuel Gas Company* case, just cited, is both illuminating and suggestive. Although only retail gas rates ordered by a state commission were in question, the Court not only dealt with the business and property of the system as a unit but also examined critically a contract between a holding company and an unregulated, non-utility subsidiary. The treatment of the system as a unit, which involved apportionments of a rate-base between regulated and unregulated parts of the business, necessarily passed over a wholesale contract at the state line⁵² and ignored the separate corporate entities of the wholesaling and retailing business.⁵³

⁴⁷ The argument might be made that all operating subsidiaries receive unallocable benefits offsetting unallocable costs merely by being united into a system. This point, however, sidesteps the crux of the matter which is whether or not consumers in one locality are paying part of the cost of serving consumers elsewhere.

Again it may be said that pooling properties in a system necessarily brings together some properties that are weaker than others. Since this is inevitable, the interests of the system must be paramount to the interest of any one locality or property, else none of the economies of concentrated control and operation can be realized. But this principle may be pushed too far. It assumes that, if the holding company officials so determine, the stronger properties will be called upon to contribute to their weaker brethren in the same system—an application of the ability-to-pay principle which does not always harmonize with the way power rates are adjusted to lighting rates on individual properties. However, the patrons of a stronger property may be willing to relinquish the advantages to which they are entitled by contributing a favorable load, if they have faith that all their "subsidy" of the weaker property does not finally reach the pockets of the owners or promoters of the apex company. This brings us back to the need of some agency to perform sentinel

duty over the apportionments of revenues and expenses among the different parts of the system. *United Fuel Gas Co. et al. v. Railroad Commission of Kentucky*, No. 1, U. S. Supreme Court (1929) — U. S. —; see *U. S. Daily*, Jan. 3, 1929. (For a recent illustration of the problem of system cost-finding and rate-making, see *City of Wichita et al. v. Kansas Gas & Electric Co. (Kan.)* P. U. R. 1928 E 634 and cases cited therein, and cf. *Chesapeake & Potomac Tel. Co. v. Whitman*, *supra* n. 8, at 957).

⁴⁸ *Chesapeake & Potomac Tel. Co. v. Whitman*, *supra* n. 8, at 957; cf. *Re Wisconsin Tel. Co.*, P. U. R. 1927 A 581 at 591-592.

⁴⁹ See, for example, the recent case in the U. S. Supreme Court, *United Fuel Gas Co. et al. v. Railroad Commission of Kentucky*, *supra* n. 47.

⁵⁰ *Ibid.*

⁵¹ With due regard, of course, to the historical aspects of the problem.

⁵² As was involved in *Peoples Natural Gas Co. v. Public Service Commission*, 270 U. S. 550 (1926) and in *Public Utilities Commission v. Attleboro Steam and Electric Co.*, 273 U. S. 84 (1927).

⁵³ The Warfield Natural Gas Co., a subsidiary of the United Co., was treated as the agent of the latter "in view of the history and intercorporate relations" of the two companies.

However, this procedure was with the consent of the company, instead of over its objections.

Of even greater significance in the problem here considered was the handling of the contract between the holding company and the subsidiary. In setting aside the terms of this contract,⁵⁴ the Court disregarded the corporate entities on the ground that they were used to evade statutory obligations⁵⁵ by siphoning revenues from the regulated gas business to an unregulated gasoline extraction business. Although this contract did not involve management services, it bore some of the features of management contracts. The case as a whole gives strong support to a commission's power in behalf of consumers (1) to examine critically transactions between affiliated corporations, and (2) to modify⁵⁶ terms of such contracts (a) if better terms could have been secured elsewhere or (b) if the subsidiary does not receive "substantial benefits." Although several questions are left in doubt, such as, what are "substantial benefits," and do "better terms" mean terms secured by dealing at "arms' length," Mr. Justice

Stone's opinion should encourage the state commissioners in their handling of these problems.

These queries are necessarily not exhaustive. But they suggest doubt whether the Committee's recommendations are administratively sufficient and legally possible except in cases classifiable with the United Fuel Gas Company. If more far-reaching powers are necessary to correct the alleged abuses, what additional regulatory powers may the states fall back upon? Massachusetts proposes the use of the contract power to displace or supplement the police power.⁵⁷ In other states a movement exists to remove some of the present obstacles to public ownership and competition.⁵⁸ Some extension of the licensing power also seems within the range of possibility, though it has not been publicly discussed to any extent and, after examination, it may not promise effective results.

Other proposals to fill the gap in regulation are based on the conviction that the states individually are powerless. In general, these suggestions fall conveniently into three groups: (1) Joint use of federal and state powers;⁵⁹

⁵⁴ By terms of the contract the subsidiary paid one-eighth of the gross profits from gasoline sales to the parent company, although the West Virginia Commission and the state Supreme Court had previously declared that 50% of net earnings should be allocated to the gas business. (*City of Charleston v. Public Service Commission*, 95 W. Va. 91 at 126 (1923).)

⁵⁵ For similar disregard of corporate fictions designed to evade statutory obligations, see *U. S. v. Lehigh Valley Railroad Co.*, 220 U. S. 257 (1911); *Ohio Mining Co. v. Public Utilities Commission*, *supra* n. 42, at 147-151 (1922); *I. M. Wormser, op. cit.*, pp. 32-33, 73-67.

⁵⁶ Modifications "suggested" informally by the commissions, accepted by the companies, and frequently not a matter of public record, are excluded from consideration, though the importance of this influence by commissions is recognized.

⁵⁷ Mass. House Bill 170 (1928); House Doc., No. 169, December 7, 1927; House Doc., No. 1150, March 14, 1927; Report of Department of Public Utilities, pursuant to Resolves, 1928, c. 49, December 14, 1928; Raushenbush and Laidler, *op. cit.*, *supra* n. 4, at 267 ff.

⁵⁸ For example, see 23 *The Municipality*, 208, 235,

383 (published by the League of Wisconsin Municipalities); also Mass. House Bill No. 170; Mass. Dept. of Public Utilities, Report, December 14, 1928.

⁵⁹ This group of proposals includes at least two varieties:

(1) Interstate compacts under the "compact clause" of the Federal Constitution (See John H. Gray, "The Dilemma of Giant Power Regulation," 119 *Annals of the American Academy of Political and Social Science* at pp. 113, 115 (January, 1927); Philip P. Wells, "Federal and State Relations in the Control of Power Development and Distribution," *ibid.*, at p. 131; O. C. Merrill, "Federal Versus State Jurisdiction over Power Development and Its Supervision," *ibid.*, at 136; Report, Giant Power Survey Board, *op. cit.*, at 162; Raushenbush and Laidler, *op. cit.*, at 276);

(2) The delegation by Congress of original jurisdiction in interstate cases to the state commissions as federal agents with limited right of appeal to some federal administrative agency (See George W. Anderson, "State Commissions as Regional Federal Commissions," *Pro-*

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(2) Use of federal powers alone;⁶⁰ (3) extra-governmental or self-regulation.⁶¹

Before reliance is placed on the method of enlarging state commission jurisdiction over subsidiary operating companies, the controlling holding companies, or both, these other proposals deserve candid examination. Do they surmount all possible legal obstacles? Do they assure administrative economy and efficiency? Do they safeguard the recognized local interests in electric and

gas service? Do they singly or in some combination reach the abuses complained of, and possibly new abuses, without bringing worse evils in their train? Are they adapted to the new system organization of these industries with their constantly changing practices? Do they reach the ultimate objective—an economic and fair distribution of the benefits of integration among consumers, investors, and owners?

(Footnote 59 continued from page 27)

ceedings, National Association of Railway and Utilities Commissioners, 1920, pp. 32-42; Gray, *op. cit.*, at 116-117; Gray, "Giant Power," 15 *National Municipal Review* 165-172 (1926); *Eighth Annual Report*, Federal Power Commission, 1928, pp. 13-14; George G. Reynolds, *op. cit.*, pp. 384 ff. The last cited book is an excellent discussion of the general problem indicated by its title. As to motor carriers, see *Proceedings*, National Association of Railroad and Utilities Commissioners, 1925, p. 385; Reynolds, *op. cit.*, pp. 390 ff; I. C. C., Docket 18300; David E. Lilienthal and Irwin S. Rosenbaum, "Motor Carrier Regulation: Federal, State, and Municipal," 26 *Columbia Law Review* 954 (1926).

⁶⁰ The proposals of this nature include:

(1) Extending the power of the Interstate Commerce Commission over interstate delivery and sale of gas and electricity (Gray, *op. cit.* at p. 113-116; Gray, *National Municipal Review*);

(2) Similar but less drastic extension of powers, or more adequate support of existing powers, of Federal Power Commission (Merrill, *op. cit.*, at 136-7; *Annual Report*, Federal Power Commission, 1928, pp. 7-14);

(3) Federal incorporation and licensing (A. F. Myers, *Annals American Academy of Political and Social Science*, pp. 145 ff. (January, 1927); Ripley, *op. cit.*);

(4) Creation of regional federal commissions (G. W. Anderson, *op. cit.*; Reynolds, *op. cit.*, 384 ff; C. O. Ruggles, "The Regulation of Electric Light and Power Utilities," paper read at meetings of American Economic Association, December 28, 1928).

⁶¹ By this is meant the willingness and capacity of the better elements in the industry, or a related industry, to control the activities of the less scrupulous. (See Erickson, *op. cit.*; Whitney, *op. cit.*; J. M. Clark, *Social Control of Business* (University of Chicago Press, 1926), Chs. 13, 14); cf. *Electric Public Utilities Co. v. Public Service Commission*, P. U. R. 1928 E 860-861.

INCREMENTS IN SUBDIVIDED LAND VALUES IN TWENTY CHICAGO PROPERTIES

By HOWARD L. SHANNON and H. MORTON BODFISH

I. The Scope and Method of This Study and of Previous Similar Studies

THE tendency of subdividers to make a sales appeal on the basis of expected increases in lot prices is a fact generally admitted. But the general accuracy of this expectation certainly may be questioned. Quantitative data are essential to the proof or disproof of such a premise. While the data in this study are not adequate for broad generalizations, an attempt is made to present here some accurate information concerning increments of value in vacant subdivided land held for investment.

In the orthodox literature there is surprisingly little in the way of statistical data on land income and increments in land value.¹ This situation is largely caused by the great difficulty of obtaining satisfactory quantitative material for such studies. Although a perusal of the secondary sources failed to reveal any facts useful for such a study, two studies conducted in eastern cities suggested a technique for investigation. It was necessary, however, to build up a method of investigation adapted to local records. This study is, therefore, a discussion of the carrying costs of land, their effect upon incre-

ments, in value, and a record and brief analysis of the facts which came to light in the transaction history of 20 vacant Chicago properties.

In 1926 the Institute for Research in Land Economics and Public Utilities at Northwestern University had gathered facts concerning several thousand pieces of real estate transferred in Chicago, including the 1925 sales price of each of these properties. Among these samples were numerous cases of outlying vacant properties. From these vacant properties 20 parcels, aggregating 76 lots, were chosen as the basis for this study.² The parcels to be studied were selected because of the availability of data pertaining to their values without regard to the probable balance of gain or loss to the owner.

To secure the price history of each piece of property, as shown by its actual sales prices, the entire chain of title for each property was examined, the warranty deeds being perused to obtain the original purchase price and the price paid for the property at each subsequent sale. This method revealed the original purchase price for each of 20 properties, and for eight of the parcels provided a nearly complete price history for the period from the original purchase to 1925.³ From these data the

¹ An excellent study dealing with New York and its environs has recently been published by The Regional Plan of New York. Messrs. Lewis, Heydecker and F. O'Hara are the authors and the title is "Land Values," engineering Seven, Monograph Number Three.

² In the original selection of properties approximately 100 parcels were chosen on the basis of price and legal description of the property. Of these 100 cases the original purchase price of the lot or the lots comprising the parcel was available for 20 properties. The avail-

ability of the original purchase price of the parcel was the ultimate deciding factor in choosing the properties to be studied.

³ Whenever "original purchase price" is used in this study, it is meant to refer to the price paid for the property by the first purchaser after the property was placed upon the market by a subdivider or real estate firm.

nominal increment of value of each of the properties was determined.⁴

The costs of owning or holding these properties, with the exception of interest, of course, were computed by searching the public records, including those in the Cook County Collector's Office and in the office of the City Collector of Chicago. Tax charges, assessed valuation and warrant numbers for each piece of property were available in the Cook County tax records. From these yearly tax payments for each property were taken. Special assessment charges were obtained by tracing the warrant numbers in the special assessment records of the City Collector. Interest compounded at 4% was computed on the base value through to a subsequent sale, or in case no sale was recorded, through to 1925. Interest was also computed on all items of taxes and special assessments from the date they become due through 1925. The justification for charging these items against the nominal increments of value is considered later in this paper.

Similar Previous Studies. As two other studies of land values have been used as a guide, the method employed by these other writers will be briefly reviewed. In 1922 Dr. G. B. L. Arner of New York, under the direction of a committee, completed a study of land values in New York City.⁵ The study was divided into four general divisions: (1) an intensive study of nine vacant or nearly vacant parcels of land in the developed sections of the Borough of Manhattan; (2) an intensive study of a tract of about 14 acres on Washington

Heights, together with a large acreage tract in the upper Bronx; (3) a study of ten tracts which were subdivided and sold at auction between 1905 and 1913; and (4) a less detailed study of each of the five boroughs of New York City from 1906 to 1921, with additional data in regard to the five wards in the Borough of Queens, and a tract of 24 square miles in Brooklyn.

These tracts, as in the study of Chicago properties, were chosen because of the availability of data pertaining to their values. The price history of each tract was traced back as far as possible, consistent with a fair degree of accuracy, to some year in which a reasonably accurate estimate of value could be obtained. From that year the assessed valuations were traced through 1921 and taxes computed for each year. The figures presented were computed from the original records and published reports of the New York Tax Department or from other primary and trustworthy sources. The amounts paid in special assessments were obtained by searching the original records in the Bureau of Assessments and Arrears of the New York City Tax Department. Interest compounded annually at 4% was computed on the base value through 1921, and also on all items of taxes and special assessments from the date they became due through 1921.

Three years later a second study of increments in land values in Philadelphia was completed by Mr. W. N. Loucks.⁶ The ensuing summary of the method employed shows the similarity of the technique of the two investigations. The object of Mr. Louck's study, as he stated, "Was to find what in-

⁴ The nominal increment or decrement of value is the monetary amount of the difference between the purchase price and a subsequent sales price of a property, from which the carrying costs of land must be deducted to give the net increment or decrement of value accruing to the owner of the property.

⁵ This study was prepared under the direction and with the advice of a committee consisting of Alexander M. Bing, Richard S. Childs, Clarence Stein, Robert

D. Kohn, Lawson Purdy, Robert Murray Haig, Graham R. Taylor, Robert E. Simon, Frederick L. Ackerman, Herbert S. Swan, and C. H. Whitaker.

⁶ Mr. Loucks is affiliated with the Wharton School of Finance, University of Pennsylvania.

creases or decreases had occurred in Philadelphia land values during the period beginning 1880-1900 and ending 1913." Fifty tracts of land were used in the study. These tracts were divided into four classes: Class I included 16 tracts located rather close together in the northern part of the city, each having a money value in 1913 of less than \$2,000; Class II consisted of three tracts similarly located, each having a money value in 1913 of over \$2,000; Class III was composed of 28 tracts scattered over the residential sections of the city, each having a money value of less than \$2,000 in 1913; and Class IV contained three tracts scattered over the residential sections, each having a money value of more than \$2,000 in 1913. None of the tracts were located in the central business sections of the city, and all were unimproved during the entire period investigated. The money value in 1913 was the selling price of the property growing out of the conveyance of the tract to another owner, but no statement was made as to the sources of the value of the property in the base year.

Carrying costs computed by Mr. Loucks were the same as those computed by Dr. Arner with the exception of taxes. Dr. Arner⁷ considered all taxes paid as carrying costs from the point of view of the individual or investor, while Mr. Loucks⁸ included only those tax payments which were an increase over the amount of taxes existing in the base year. Over a long period of time this method would materially reduce the cost of taxes.

The similarity in the technique used by Dr. Arner and that used in the in-

vestigation of Chicago properties will be noted. The carrying costs as computed are identical, but a slight variation exists as to data. The value of the properties in the New York study was estimated for both the base year and for 1921. However, in the study of Chicago properties only those properties were studied for which an actual consideration was available for both the base year and for 1925, so the results of this study are strictly factual.

This epitome of the technique of investigation used by Dr. Arner and Mr. Loucks and the previous statement of the method employed by the writers indicates the similarity of the three studies.

II. Carrying Costs of Land.

Calculation of land increments or decrements, from the point of view of the investor, necessitates consideration of certain carrying charges or costs, which are peculiar to land as an investment. The difference between the nominal purchase price and the nominal selling price does not constitute the net increment to the investor for, during the period of holding land vacant, certain costs are necessarily borne by the investor or owner, which must be considered as an additional cost of owning the land.⁹ Carrying charges may be classified as: direct, those which are measurable; and indirect, those which are present, but not measurable. The indirect costs may include such items as the time and effort spent in the care and maintenance of the property, the cost of withholding land from an alternative use, and the economic losses

⁷ See "Increments in Land Values in Philadelphia," *Journal of Land & Public Utility Economics* 469-477 (October, 1925).

⁸ See "Land Values in New York," 36 *Quarterly Journal of Economics* 454 (August, 1922) or R. T. Ely et al, *Urban Land Economics* (Ann Arbor: Edwards Bros., 1922).

⁹ S. L. McMichael, and R. F. Bingham, *City Growth and Values* (Stanley McMichael Publishing Organization, 1923), page 282.

sustained as a result of premature installation of improvements.¹⁰ As these latter costs are not measurable, no attempt was made here to determine their effect upon land as an investment.

The direct costs which accompany or are chargeable to land as an investment are taxes, special assessments, and interest. In the computation of land increment or decrement, or investment yield, each of these, as well as the original capital investment, must be taken into consideration. Table I presents a typical financial account of the owner of a plot of vacant property at the end of a given tenure.

TABLE I. POSSIBLE FINANCIAL ACCOUNT OF HOLDER OF UNIMPROVED LAND*

	Expenditures	Receipts
Cost of tract in 1900.....	\$1,200.00	
Taxes paid, 1900-1925.....	388.98	
Special assessments paid, 1900-1925.....	168.31	
Interest on original investment and taxes and special assessments from date of payment at 4% compound interest.....	2,461.18	
Net increment.....	281.18	
Selling price, 1925.....		\$4,500.00
Total.....	\$4,500.00	\$4,500.00

* These data are from an actual case, being one of the properties in later tabulations.

Justification for including each of these items as a cost chargeable against land as an investment and the characteristic effect of each upon the investment qualities of subdivided land are probably best presented by a discussion of the items separately.

Taxes as a Cost. In computing net land increments, or the return to the investor above aggregate carrying charges, inclusion of taxes as a cost has been the point of contention between the two writers who have made studies of land values.¹¹ The controversy arises from

the capitalization method of determining land values.¹² This method presupposes a property producing an income from which all existing costs may be deducted and the net income capitalized at a given rate of interest to determine the true market value of the property.¹³ According to Mr. Loucks, taxes existing at the time of purchase tend to be capitalized by the purchaser, and to be deducted in determining the amount he is willing to pay for the property. Only increases over existing taxes are then a part of the justifiable costs of holding land. *In this study all taxes paid by the holder of vacant subdivided property have been included as a part of the carrying costs.* The justification for this procedure, in preference to discounting existing taxes, lies in the psychology of a purchaser of vacant land.

Ordinarily the buyer of vacant urban property has a speculative interest in the transaction unless he intends to build on the land. At best only a small incidental, annual income can be expected. The primary motive of the buyer is, therefore, to pocket the appreciation of value after holding the property for awhile. Usually this is thought of, not as a succession of annual increments in value, from which each year's taxes or other expenses should be deducted, but rather as a lump-sum appreciation. Before buying, the careful investor will, of course, mentally deduct from the expected but uncertain appreciation what the holding of the land is expected to cost him. Even the average buyer of vacant land may take account of anticipated annual tax payments.

¹² Value determined by the capitalization method is the resultant of the net income divided by rate of return.

¹³ The fair cash market value of a piece of real estate is the price which a seller, who is willing and able but not compelled to sell, will accept for his property from a purchaser, who is willing and able but not compelled to buy.

¹⁰ Robert Whitten, "A Research into the Economics of Land Subdivision" (Syracuse: The School of Citizenship and Public Affairs, Syracuse University, 1927), p. 4.

¹¹ *Supra* p. 31, notes 7 and 8.

But there is no certainty that such a mental calculation takes place, and especially is there no means of ascertaining quantitatively (1) the exact amount of the tax cost mentally deducted by the purchaser; and (2) whether or not the buyer's offering price is lower than it would be if he did not take expected tax payments into consideration. In short, the uncertainty as to whether or not discounting of taxes actually does take place in the mind of the purchaser and the impossibility of measuring such discount, if it does take place, justify, in the opinion of the writers, the rejection of the Loucks' method.

An additional reason for this view is that vacant subdivided land usually is acquired in a speculative market. The history of the transactions in this study supports this statement. In such a market purchasers tend to disregard capitalization of existing taxes, and even to overlook all carrying costs. Prices are set largely by the sellers and there is very little, if any, opportunity for bargaining on the part of the purchaser.¹⁴

For these reasons, in order to compute the net increment, *all* taxes paid may be considered additions to the original investment in the land from the date of payment. As a simple illustration, suppose a trustee had purchased for investment purposes, with a portion of the funds in a trust fund, the property referred to in Table I. If the trustee were called upon to make an accounting of funds, it is evident that tax payments would be included as a cost of the ownership of the property. From the accounting point of view the inclusion of all taxes paid as a carrying cost of land seems justified. As this approach

is essential from the quantitative, individual point of view, it seems very logical to suppose that at the time of sale the owner would expect or hope to receive for the property a sum which would at least equal the original investment plus all other cash outlays or payments, less any incidental income, such as might accrue from leasing a site without improvements, as for parking space.

The writers concluded, therefore, (1) since vacant subdivided land is not income-producing property it does not offer a basis for the capitalization method of determining land values; (2) since the purchaser is at a disadvantage in the market for subdivided land; and (3) since taxes are a cash payment which should be repaid at the time of sale, it is justifiable to include all taxes paid as a part of the carrying cost assumed by the investor.

In Chicago the assessed value of vacant property has tended to increase as the value of the property increased. The rate of increase in assessed value has been approximately the same as the rate of increase in market value, assessed value being continually about 13% of market value. But, while the assessed value of the property has shown a fairly stable ratio to market value, the tax rate has been increasing. In 1901 the tax rate in Chicago was 5.543% but by 1925 it had increased to 9.04%.¹⁵ The effect of increasing the assessed value of the property as property increases in value and of the increasing tax rate has been that the owners annually pay a greater proportion of the total value of the property to the city for the maintenance of government. At the time of

The purchaser's disadvantage in the market is shown by the difficulty later encountered in trying to resell subdivided lots.

¹⁵ For a yearly record of rates see, *The Economist* (Chicago, Economist Publishing Company), April 2, 1927.

¹⁴ What bargaining does take place in the subdivision market has little or no effect on prices. It is more apt to exert its influence on terms of payment or terms of acceptance in trade of other properties, usually vacant lots which are being paid for on the installment plan.

the original purchase the taxes paid on 20 pieces of property valued at \$45,103.53 amounted to only \$368.55 or .80% of the value of the property. However, in 1925 the amount of taxes paid was \$2,861.71, or 1.29% of the sales value of the property.

Special Assessments as a Cost. Special assessment charges are the second of the carrying charges, or costs, necessarily considered in computing net land value increments or decrements. Previous studies of land values have included special assessments as a cost of holding vacant land as an investment.¹⁶ This is probably because of the essential characteristic of a special assessment levy which may be defined as "a proportional contribution paid by the owner of land, on the occasion of certain types of improvements by the public authorities which have increased the value of the land."¹⁷ Various definitions of special assessments are to be found, but the essential thought in each is the idea of the payment for a benefit or improvement conferred.¹⁸

Special assessments are irregular costs which are levied upon land, or real property only, so the investor in land is confronted with a distinct type of cost that is not charged against any other type of investment. However, the theory of the special assessment is that the amount assessed or levied against the property must not exceed the private benefit accruing from the improvement.

Practically all improvements by public agencies which tend to increase values of vacant property held for investment purposes are financed by special municipal assessment levies. Analysis of special assessment levies against the 20 properties examined in this study in-

dicates the multiplicity of improvements which are financed by the municipality. The improvements for which special assessments were levied included sidewalks, street curbing, street paving, street widening, water mains, storm sewers, and sewers. Each of these adds to the value of property by making it more available or accessible. By availability is meant the ease with which a piece of property lends itself to a building improvement. Accessibility means the ease with which property may be reached by an individual. It seems justifiable, therefore, to include special assessments as a cost of holding land for investment, for such payments are in reality a part of the purchase price, which merely appear in the form of a tax.

Interest as a Cost. The consideration of interest in computing net increments or decrements of land value is an application of the theory of alternative costs. The investor in land has possible alternative investments, such as industrial stocks and bonds, government securities, and savings bank deposits. An investment in stocks and bonds would yield a return year by year, but an investment in vacant land ordinarily yields no annual return previous to improvement of the property. The annual return or interest foregone represents, therefore, an additional investment in the land. To break even the investor in land should receive, when the land is sold, a sum equal to the original cost price plus an amount which will compensate for the money outlays for taxes and special assessments, and for the loss of interest which might have been received had the principal been invested in a different manner.

¹⁶ For a complete discussion of the theory of special assessments see J. P. Jensen, *op. cit.*, Chapter X, pages 158-166; or, H. L. Lutz, *Public Finance* (New York: Appleton, 1924) Chapter XIII, pages 216, 223-235.

¹⁸ *Supra*, notes 6 and 8.

¹⁷ J. P. Jensen, *Public Finance* (New York: T. Y. Crowell Co., 1924), p. 158.

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Interest, then, from the individual point of view is a carrying cost which must be deducted in computing the net increment of value, being justified on the basis of alternative investment and interest forgone. This interest carrying charge is not simple interest, however, but compound interest—in this study interest being compounded annually. Compound interest was computed rather than simple interest for, had the money been invested in securities yielding an annual return, this annual return would have been available for reinvestment at a rate comparable to that being paid upon the principal.

However, the original sales consideration for the land does not constitute the entire cost of the land. Interest as a carrying cost of land is computed not only upon the original investment but also upon the taxes and special assessment charges from the date of levy, because both these charges may be said to be a part of the original investment from the date they become due and

payable. This method is legitimate in light of the fact that tax and special assessment payments are monetary outlays which might have been invested in some alternative manner to yield an annual income.

In this study 4% compound interest is used as the rate in computing interest as a cost. The choice of the rate to be used depends upon the purpose of the individual who may be computing land value increments, and leads to varying results. The higher the annual interest rate, the less the net increment of value. The rate chosen seemed desirable for two reasons: (1) over a very long period of time a non-speculative alternative investment could be expected to yield such a rate of return, and (2) the use of 4% as a rate makes the results of this study comparable with the two other, similar studies mentioned.

The general character of compound interest as a cost need not be discussed at great length. A sum of money invested at 4% interest doubles in value

TABLE II. PURCHASE PRICES, TAXES, SPECIAL ASSESSMENTS, CUMULATED CARRYING COSTS, AND SELLING PRICES OF 20 VACANT CHICAGO PROPERTIES

(1) Property Number	(2) Period of Ownership	(3) Purchase Price	(4) Total Taxes Paid	(5) Total Special Assess- ments Paid	(6) Total Taxes and Special Assess- ments Paid (4) Plus (5)	(7) Purchase Price (3) Plus (6) Cumulated at 4% Com- pound Interest	(8) Cumulated 4% Com- pound Interest (7) Minus (6)	(9) Selling Price	(10) Increment of Value*
1.....	1917-1925	\$3,000	\$202	\$146	\$348	\$4,687	\$4,338	\$13,000	\$8,312
2.....	1900-1925	1,200	388	168	557	4,238	3,681	4,500	261
3.....	1915-1925	2,250	508	1,086	1,595	5,723	4,127	13,000	7,276
4.....	1920-1925	15,050	2,899	84	2,984	22,342	19,358	17,000	5,342
5.....	1891-1925	2,412	797	1,062	1,859	12,373	10,514	12,500	126
6.....	1921-1925	3,920	236	741	977	5,812	4,835	9,750	3,937
7.....	1889-1925	2,909	821	345	1,167	15,843	14,676	12,000	3,843
8.....	1916-1925	900	334	678	1,013	2,556	1,543	12,500	9,943
9.....	1889-1925	681	363	375	738	5,099	4,360	10,000	4,900
10.....	1893-1925	2,210	317	686	1,003	9,376	8,373	6,000	3,376
11.....	1890-1925	1,050	176	1,248	1,425	6,790	5,364	9,300	2,509
12.....	1890-1925	700	145	727	873	4,150	3,276	7,500	3,349
13.....	1888-1925	2,000	3,373	338	3,712	15,203	11,491	9,000	6,203
14.....	1911-1925	2,040	927	100	1,027	4,946	3,919	8,000	3,053
15.....	1921-1925	600	60	296	357	1,078	720	2,250	1,171
16.....	1872-1925	705	1,100	1,010	2,110	9,329	7,219	17,000	7,670
17.....	1872-1925	575	1,485	2,555	4,041	11,192	7,151	23,500	12,307
18.....	1884-1925	1,500	2,305	1,088	3,394	11,385	7,990	11,500	114
19.....	1890-1925	750	1,848	689	2,538	6,730	4,196	12,000	5,269
20.....	1887-1925	650	1,632	225	1,858	5,901	4,043	11,500	5,598
Total 1-20....		\$45,103	\$19,929	\$13,656	\$33,585	\$164,762	\$131,180	\$221,800	\$57,037

* Minus sign denotes decrement.

in slightly more than 18 years. This indicates that property must increase in value more than 5% a year, if the value increase is to equal the carrying cost of interest alone.

Computing Net Increment or Decrement of Value. From the investor's or owner's point of view, therefore, the net increment or decrement in value of a property is equivalent to its money value at the time of sale, minus the money value in the year of purchase, and the carrying costs of the property which include (1) the amounts paid in land taxes from the date of purchase; (2) special assessments paid during the same period; and (3) compound interest charges for the period from the time of purchase to the time of sale. In the above manner, the increment of value can be computed for any piece of property for which data are available.

One other matter of technique remains to be considered. The increment may be computed as though each prop-

erty had been held in one tenure¹⁹ for the entire period in which the price history was studied. This is the method used by Dr. Arner. The other method is to compute the carrying costs for each owner of the property, so as to determine the actual increment of value accruing to each person who at any time may have held possession of one of the properties studied. The results of the study of the 20 Chicago properties will be presented from both points of view.

III. Increments in Subdivided Land Values in Chicago as Affected by Carrying Costs

The analysis in this part of the study is essentially based upon the point of view taken by Dr. Arner in his study of New York properties. For the

¹⁹ "Tenure" is used here to mean merely the act of holding property for a period of time, rather than the manner of such holding.

TABLE III. RATIO OF PURCHASE PRICES, TAXES, SPECIAL ASSESSMENTS, AND CUMULATED CARRYING COSTS TO SELLING PRICE OF 20 VACANT CHICAGO PROPERTIES

(1) Property Number	(2) Period of Ownership	(3) Purchase Price	(4) Total Taxes Paid	(5) Total Special Assessment Paid	(6) Total Taxes and Special Assessment Paid (4) Plus (5)	(7) Carrying Cost (3) Plus (6) Cumulated at 4% Compound Interest	(8) Cumulated 4% Compound Interest (7) Minus (6) Plus (5)	(9) Increment of Value*
1.....	1917-1925	23.1%	1.6%	1.1%	2.7%	36.1%	33.4%	63.9%
2.....	1900-1925	26.7	8.6	3.7	12.3	94.2	81.9	5.8
3.....	1915-1925	17.3	3.9	8.4	12.3	44.0	31.7	66.0
4.....	1920-1925	88.5	17.1	0.5	17.6	131.4	113.8	-31.4†
5.....	1891-1925	19.3	6.4	8.5	14.9	99.0	84.1	1.0
6.....	1921-1925	40.2	2.4	7.6	10.0	59.6	49.6	40.4
7.....	1889-1925	24.2	6.8	2.9	9.7	132.0	122.3	-32.0†
8.....	1916-1925	7.2	2.7	5.2	7.9	20.4	12.5	79.6
9.....	1889-1925	6.8	3.6	3.8	7.4	50.9	43.5	49.1
10.....	1893-1925	36.8	5.3	11.4	16.7	156.3	139.6	-56.3†
11.....	1890-1925	11.3	1.9	13.4	15.3	73.0	57.7	27.0
12.....	1890-1925	9.3	1.9	9.7	11.6	55.3	43.7	44.7
13.....	1888-1925	22.2	37.5	3.8	41.3	167.9	126.6	-67.9†
14.....	1911-1925	25.5	11.6	1.3	12.9	61.8	48.9	38.2
15.....	1921-1925	26.6	2.7	13.2	15.9	47.9	32.0	52.1
16.....	1872-1925	4.2	6.5	5.9	12.4	54.4	42.0	45.6
17.....	1872-1925	2.4	6.3	10.9	17.2	47.6	30.4	52.4
18.....	1889-1925	13.0	20.0	9.5	29.5	99.0	70.5	1.0
19.....	1890-1925	6.3	15.4	5.7	21.1	56.1	35.0	43.9
20.....	1887-1925	5.7	14.2	2.0	16.2	51.3	35.1	48.7
Percentage of selling price		20.3	8.98	6.2	15.1	74.3	.....	25.7

* This is the difference between Col. (7) and selling price taken as 100%.

† Minus sign denotes decrement.

purpose of measuring the effect of carrying costs upon apparent or nominal increments of value, *each property was considered as having remained in the hands of one owner from the date of purchase until the time of sale in 1925.* In this manner a minimum carrying cost was computed. The data in Table II show that the 20 properties studied were originally purchased for \$45,103.53. In 1925, however, the value of these same properties, as shown by actual sales, was \$221,800.00. The nominal or apparent increment of value was \$176,696.47. The data in Table II present the total carrying costs of each separate property and the aggregate carrying costs for the 20 properties taken together. In Table III these figures are reduced to percentages of the 1925 selling price.

An increment of property value cannot be computed until the original purchase price has been deducted from the selling price. In view of this, in the computation of carrying costs, the original investment has been considered as a cost. The data in Table IV show that the original cost of the property constituted approximately $\frac{1}{4}$ and taxes, special assessments, and interest the remaining $\frac{3}{4}$ of the total carrying cost of the property.

TABLE IV. CARRYING COSTS AND THE RATIO OF CARRYING COSTS TO TOTAL CARRYING COSTS OF 20 VACANT CHICAGO PROPERTIES

Type of Charge	Amount	Ratio
Interest.....	\$86,073.43	52.25%
Purchase Price.....	45,103.53	27.37
Taxes.....	19,929.40	12.09
Special Assessments.....	13,656.32	8.29
Total.....	\$164,762.68	100.00%

Effect of Taxes on Increments in Value. Tax payments upon vacant property constitute a very heavy deduction which must be made from the sales price of property to determine the actual net

increment or decrement in value. The total amount of taxes (\$19,929.40) paid on the 20 properties (Table II) represents an increase of 44.18% in the original investment in the land. This figure indicates the necessary increase in property value which must take place before any increment in value could exist, since taxes are a direct cost which must be taken into account in figuring the increment or decrement in land values. Expressed as a percentage of the total carrying charges, taxes represent a considerable portion (12.09%) of the cost of holding land.

Effect of Special Assessments on Increments of Value. Special assessments also constitute a direct deduction. In column 5 of Table II are given the total special assessment payments for each of the properties and also the aggregate special assessment payments for the 20 properties. While special assessment payments were found to be less than tax payments, their effect upon the net increment of value is noticeable. The special assessment levies of \$13,656.32 amounted to 30.27% of the original purchase price of the property, and to 8.29% of the total carrying cost.

Effect of Interest on Increments of Value. Interest is the most significant of the carrying costs of land. The interest charges upon the 20 properties studied aggregated \$86,073.43, or 190.83% of \$45,103.53, the original price. The importance of interest as a cost is further evidenced by the fact that it was greater than the total of the original investment in the property, the total taxes paid, and the special assessments paid. The data in Table IV show that interest charges amounted to 52.25% of the total carrying costs.

But here another important question is, What share of the apparent increment of value did the interest

charge absorb? The nominal increase in value of the 20 properties was \$176,696.47, but interest figures amounted to \$86,073.43 or 48.71% of this amount. Had the rate of interest used in computing the carrying costs been higher, the cost naturally would have been increased, for interest as a charge is a function of the rate of interest and the length of time which the property is held.

The foregoing material has given a summary of the portion of nominal increment which is taken by the separate carrying costs of land. The total carrying costs aggregated 74.28% of the nominal increase in property, leaving a net increment of \$57,038.25, or 25.72% of the 1925 selling price.

Increments and Decrements in Value. The 20 properties studied showed a net increment of 25.72%,²⁰ but when the properties are considered individually the varying effect of carrying costs upon nominal increments of value is clearly discernible. Property Number 8 showed the greatest relative net increment (Table III). The monetary net increment was \$9,943.31, or 79.60% of the selling price. In contrast to this, Property Number 18 showed an absolute net increment of only \$114.51 or 1%. Between these two extremes were scattered 14 other properties with an average net relative increment of approximately 40%.

While 16 of the properties showed a net increment of value, two of which were less than 2%, four of the properties showed a net decrement of value. Property Number 13 showed the largest

net decrement, the 1925 sales value being only \$9,000 while the carrying costs totaled \$15,203.73 or 167.93% of the 1925 sales price. The other three properties showed net decrements in value of 31.42%, 32.03%, and 56.28%, respectively. The absolute and relative net increments for all properties are determinable from the data in Tables II and III.

Considering the expectations of purchasers, the percentage of properties showing decrements of value is large (20%), especially when one considers that three of the properties showed a net increment of less than 6%.²¹

Comparative Results Obtained in New York and Chicago. As the method employed in this analysis of the 20 properties is entirely comparable with that used by Dr. Arner, it is interesting to compare results of the two studies. Carrying costs for the nine New York properties were computed for the period from 1880 to 1921.²² The data in Table V

TABLE V. RELATIVE CARRYING COSTS OF 20 VACANT CHICAGO PROPERTIES AND 9 VACANT PROPERTIES IN MANHATTAN ISLAND EXPRESSED AS PERCENTAGES OF THE 1925 VALUE

Cost Items	Chicago	New York City
Value in base year.....	20.33%	20.0%
Total taxes paid.....	8.98	37.2
Total special assessments paid.....	6.15	.7
Total taxes and special assessments paid.....	15.13	37.9
Total cost.....	74.28	161.5

present the relative results obtained in each study when the costs are expressed as a ratio of the 1925 value. The ratio of the value in the base year to the value

²⁰ The absolute estimated value of the nine New York properties in 1921 was \$5,057,000. (G. B. L. Arner, *op. cit.*, p. 544). The total value of land in Manhattan at that time was \$3,468,000,000. As property values in Manhattan had only increased to \$3,946,800.00 in 1925 (Lewis, etc., *op. cit.*, p. 71) the increase in the value of the nine properties would be negligible and figures computed to 1925 would probably not give a more favorable result.

²¹ Expressed as a percentage of the 1925 sales price.

²² The inflated prices of real estate during the five-year period previous to the World's Fair of 1893 seem to be indicated by this analysis. Ten of the properties studied were originally purchased in the period 1887-1893. Four of these show a net decrement, while two show a net increment of less than 2%.

in 1925 is practically identical in both studies but at this point all indications of similarity disappear. This is undoubtedly attributable to the time element. Total tax payments were much larger on the New York properties, while special assessment payments appear to have been almost negligible. The very much larger decrement in New York values is apparently the result of accumulated interest charges, for these properties were held for a much longer period of time than the Chicago properties.

The purpose of this comparison, however, is not to show the relative superiority of Chicago properties from the point of view of net increment in value, but rather to indicate that carrying costs may obliterate increments in value of even the most valuable land.

Annual Increments Considered. Thus far in this analysis increments in value have been considered as absolute amounts which appear at the time of the sale of property, or at the end of a given period. An increment of 40% appears very significant, but it immediately loses its significance if a tenure of 20 years has been required to produce it. The time element, then, is very important in discussing increments in land value.

Increments in property values do not appear as annual proportional increases, but instead tend to be of an irregular nature. Value may remain constant for a long period, and then, as a result of a new improvement, a real estate boom or any one of innumerable causes, it may suddenly increase. However, a quantitative analysis of real estate price movements is difficult to make for two reasons. In the first place, data on real estate transactions are scanty and unsatisfactory. The only public record of a transaction is found in the recorded deed, and this, as was noted before,

seldom contains information regarding price. Secondly, every parcel of real property is unique and consequently no series of price quotations can be used in the ordinary way for the construction of an index of prices.

Therefore, in order to show the significance of time in the analysis of property increments, it is necessary to consider *property increments as proportional annual increases in value.*

TABLE VI. LENGTH OF TENURE, NET INCREMENTS AND ANNUAL INCREMENTS OF 20 VACANT CHICAGO PROPERTIES

(1) Property Number	(2) Length of Tenure in Years	(3) Total Net Increment	(4) Annual Net Increment	(5) Annual Increment as % of 1925 Selling Price	(6) Annual Increment as % of the Purchase Price
1	8	\$8,312	\$1,039	7.99	34.63
2	25	261	10	0.23	0.88
3	10	7,276	727	5.60	32.34
4	5	-5,342	-1,068	-6.28	-7.09
5	34	126	3	0.02	0.01
6	4	3,937	984	10.00	25.11
7	36	3,843	-106	-0.89	-3.66
8	9	9,943	1,104	8.84	122.75
9	36	4,900	136	1.36	19.98
10	32	-3,376	-105	-1.75	-4.77
11	35	2,509	71	0.07	6.83
12	35	3,349	95	1.28	13.67
13	37	-6,203	-167	-1.86	-8.38
14	14	3,053	216	2.72	10.63
15	4	1,171	292	13.02	48.82
16	53	7,670	132	0.77	41.50
17	53	12,307	212	0.90	36.90
18	36	114	3	0.028	0.02
19	35	5,269	150	1.25	20.07
20	38	5,598	147	1.28	22.66
Total	549	\$57,037	\$3,880	1.75	8.60

The data in Table VI show that the 20 Chicago properties were held for an aggregate period of 549 years. The length of time for which any one property was studied varied from 4 to 53 years. The total net increment of these properties amounted to \$57,037.32. The annual net increment for each property was calculated by dividing the amount of the net increment of value of the property by the number of years covered by this study. The total annual increment of the 20 properties was \$3,880.

The amounts of annual net increments reflect the variability seen in

the total increments of value of each of the 20 properties (Table II). The annual net increments varied from an increment of \$1,104.81 to a decrement of \$1,068.43. The average annual increment for the 20 properties was \$204.56.

When the annual increments of each property are expressed as a percentage of the purchase price of the property, the variability is very noticeable, the variation being from an annual increment of 122.75% to an annual decrement of 8.38%.²³ The ratio of the aggregate annual increment to the purchase price of the properties was 8.6%.

In the computation of the carrying costs of the 20 properties, 4% compound interest was included as one of the costs. If at the time of selling the property the sales price is equivalent to the carrying costs, an accrued return of 4% compound interest is available to the landowner. The net increment, then, is an additional return above this 4%. The aggregate annual return for the 20 properties was 8.6% and the total annual rate of return accruing to the owner of vacant property was a rate of 4% compound interest plus an additional rate of 8.6% simple interest upon the original investment.

The reader is cautioned against generalizing upon the basis of the foregoing discussion, for such a small sample is rather inadequate for broad conclusions. Several other limitations on the data should also be mentioned. The first of these lies in the method of the choice of properties to be studied. While the properties chosen were typical of the cases which had been gathered, they may not have been entirely typical

of all Chicago properties. The results obtained may also have been influenced by the market conditions of 1925. In the Chicago region 1925 was a period of very great real estate activity. At this time landowners were either taking a profit upon their properties or attempting to liquidate their holdings. As it is very difficult to liquidate undesirable residential properties, a plausible assumption is that the majority of the properties studied were profit-taking properties and not attempted liquidations.

IV. *Increments in Subdivided Land Held for Investment Purposes by Individuals.*

The discussion will proceed from the point of view of the people who owned the land. It has been previously mentioned that profit, as represented in increasing land values, is very often the motive that prompts the acquiring of subdivided land. Owners of property have the chance of immediately disposing of it or of holding for a higher price expecting, of course, an appreciation in value. The particular course followed is dependent upon the owner's belief in the rapidity and continuity with which the value of the property will increase. However, it is obvious that no increment in value accrues to the owner of property as a result of appreciation unless a property will sell at a price which is greater than the original investment, plus tax and special assessment payments, and interest charges. This section is devoted to an analysis of the *increments accruing to the individual owners of the 20 vacant Chicago properties.*

All 20 properties studied were not held by the same person during the entire period. To facilitate determination of the increments accruing to the individual owners the properties have been

²³ The reader should note that these ratios are expressed in terms of the purchase price of the property, and not in terms of the selling price as are all other previous calculations. The aggregate annual net increment when expressed as a ratio of the 1925 selling price was 1.75%.

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divided into two groups: (1) 12 properties which were held by only one owner, or for which data were available for only the original purchase price and the 1925 selling price; and (2) 8 properties which were held for various lengths of time by 31 owners.

Investment Returns of 12 Properties. Table VII presents the summary of carrying costs, selling prices and net increments for each of the 12 properties which were purchased between 1889 and 1921. The difference between the total selling price (\$127,050.00) and total purchase price (\$36,282.68) gives a total nominal increment of value to the investors of \$90,767.32.

But from this amount it is necessary to deduct the carrying costs to determine the net increment to the investors. The total carrying costs amounted to \$98,994.20 or 77.92% of the 1925 sales price, a slightly higher percentage than the average (74.3%) for the entire group of 20 properties (Table III). Continuing the analysis in terms of the 1925 selling price, this, of course, made the aggregate *net* increment accruing to the 12 owners somewhat less (22%) than that accruing to the owners of the 20 properties which is 25.7%, according to the data in Table III. Neither of these percent-

ages, however, is an annual increment. The length of time the properties were held should be considered in determining an annual increment.

The variation of the increments or decrements accruing to the owners of the 12 properties (Table II) is very noticeable. The returns to the owners varied from a net increment of \$9,943.31 to a decrement of \$5,342.19. Expressed as percentages of the 1925 sales price, the variation was from an increment of 79.6% to a decrement of 56.28% (Table III). The variation in the return to the investor is more forcefully and clearly presented in the discussion of the net increments or decrements accruing to the persons who at one time or another were owners of the eight properties which are next to be analyzed.

Investment Return of Eight Properties. For eight of the properties studied a nearly complete price history of each was available. These eight properties were held in 31 separate tenures. Carrying costs for these properties were compiled for each piece of property for each individual owner (Table VIII).

The total purchase price of the eight properties at the various transactions was \$84,772.83. This sum amounted to 49.8% of the selling price of the properties, the aggregate selling price being \$170,201.98. Tax payments amounted to \$13,206.72 or 7.59% of the total selling price. Special assessment charges on the properties amounted to \$6,414.02, or 3.76% of the selling price. Sixteen of the property owners did not have to pay any special assessment charges. The total carrying costs of the properties amounted to \$164,255.09, leaving a total net increment accruing to the property owners of \$5,946.89 or 3.5% of the aggregate selling prices of the properties.

TABLE VII. SUMMARY OF DATA ON 12 PROPERTIES*

	Total Amount	As Per- centage of 1925 Selling Price
Total Purchase Price.....	\$36,282	28.6%
Total Taxes Paid.....	7,193	5.6
Total Special Assessments Paid	7,351	5.8
Total Taxes and Special As- sessment Paid.....	14,544	11.4
Total Carrying Cost Cumu- lated at 4% Compound In- terest.....	98,994	77.9
Total Selling Price.....	127,050	100.0
Total Increment of Value.....	28,052	22.1

*Refer to Tables II and III for data on individual properties.

The variation which was noticeable in the return to the investors in the 12 properties previously analyzed is even more striking in this group. Increments in value, varying from \$86.17 to \$11,115.75, accrued to 17 of the property owners. But 14 of the owners experienced decrements varying from \$45.24 to \$14,389.75. The variation was therefore from an increment of \$11,115.75 to a decrement of \$14,389.75 or, expressed as percentages of the selling price of the property, the variation was from an increment of 61.2% to a decrement of 179.92%.

The variation of returns is practically as noticeable in any one property as in the 31 instances. Property Number 17

showed the greatest variation, the increments varying from an increment of \$11,115.75 to a decrement of \$14,389.75. This situation indicates the very problematical nature and character of increments in value of real property.

The average investment return of 3.5% accruing to the 31 landowners would be an adequate rate of return if this were an annual figure, but such is not the case, for these properties were held for periods varying from two months to 34 years. Mention was made previously of the relation of time to increments in value, but this matter will be discussed at greater length later.

Investment Return of 20 Properties. In the foregoing discussion the analysis

TABLE VIII. PURCHASE PRICES, TAXES, SPECIAL ASSESSMENTS, CUMULATED CARRYING COSTS, AND SELLING PRICE OF 8 VACANT CHICAGO PROPERTIES ACCORDING TO TENURES

(1) Property Number	(2) Period of Ownership	(3) Purchase Price	(4) Total Taxes Paid	(5) Total Special Assessments Paid	(6) Total Taxes and Special As- sessments Paid	(7) Carrying Cost (3) Plus (6) Cumulated at 4% Com- pound Int.	(8) 1925 Selling Price	(9) Increment of Value*
13.....	1888-1922	\$2,000	\$2,284	\$447	\$2,732	\$11,913	\$5,000	—\$6,913
	1922-1925	5,000	1,088	.....	1,088	7,041	9,000	1,958
14.....	1911-1921	2,040	361	.....	361	3,463	4,000	536
	1921-1925	4,000	567	100	667	5,610	8,000	2,389
15.....	1921-1924	600	34	115	150	833	2,000	1,166
	1924-1925	2,000	26	180	206	2,295	2,250	— 45
16.....	1872-1873	705	.....	.....	.....	734	500	— 234
	1873-1891	500	542	.....	542	1,078	1,029	— 49
	1891-1892	1,029	7	.....	7	1,078	1,296	217
	1892-1907	1,296	198	74	272	2,705	7,000	4,294
	1907-1925	7,000	847	935	1,782	17,217	17,000	— 211
17.....	1872-1889	575	97	.....	97	1,266	751	— 514
	1889	751	6	.....	6	762	1,166	404
	1889-1890	1,166	44	.....	44	1,263	3,500	2,236
	1890	3,500	.....	.....	.....	3,511	5,700	2,188
	1890-1923	5,700	1,041	124	1,166	22,389	8,000	—14,389
	1923-1925	8,000	268	2,430	2,699	11,884	23,000	11,115
18.....	1889-1894	1,500	64	.....	64	1,896	2,250	353
	1894-1907	2,250	161	1	163	3,967	7,000	3,023
	1907-1925	7,000	2,079	1,086	3,166	19,205	11,500	— 7,705
19.....	1890-1896	750	41	18	59	1,014	1,433	418
	1896-1905	1,433	125	.....	125	2,188	1,000	— 1,188
	1905-1906	1,000	22	.....	22	1,063	1,150	86
	1906-1922	1,150	960	142	1,103	3,645	5,125	1,479
	1922-1925	5,125	698	529	1,227	7,325	12,000	4,674
20.....	1887-1897	650	46	78	125	1,186	1,000	— 186
	1897-1900	1,000	24	.....	24	1,151	1,000	— 151
	1900-1905	1,000	52	.....	52	1,275	1,050	— 225
	1905-1907	1,050	48	.....	48	1,187	6,500	5,312
	1907-1920	6,500	718	146	865	12,489	8,500	— 3,989
	1920-1925	8,500	741	.....	741	11,600	11,500	— 100
Total 8	.....	\$84,772	\$13,206	\$6,414	\$19,620	\$164,255	\$170,201	\$5,946

* Minus sign denotes decrement.

of increments in value accruing to 43 landowners has been separated into two parts: (1) the total return to each of the holders which is the subject of this section and (2) the reduction of this return to an annual figure which is the subject of the next section.

The introduction of intermediate purchases, thus increasing the bases on which the interest charges are calculated, causes the net total increment to be less (11.44%) than was the case when the 20 properties were considered as having been held in one tenure (25.72%).

The aggregate carrying costs of the 20 properties in the 43 tenures were \$263,249.29. (See Tables VII and VIII Col. 7)). The total selling prices amounted to \$297,251.98, leaving a total net increment of values of \$34,002.69. The average net increment for each tenure was \$790.76.

When these figures are expressed as ratios of the selling prices of the properties, the aggregate carrying costs amounted to 88.55% and the aggregate net increment to 11.45%. This figure also is an average absolute amount accruing to the investor at the time of sale of the property, and not an annual amount.

While the figures indicate an increment of value, the reader must constantly remember that 17 of the 43 cases studied, if each tenure is considered as a case, resulted in a net decrement to the owner. In other words, although there is a tendency for the investors to receive an increment in value upon the sale of property, the cases studied indicate that the probability of receiving a decrement is approximately one in three. The uncertainty of a favorable return is very great.

Annual Increments of Value Accruing to 43 Landowners. Although the owner

of real estate receives an increment of value in a total sum, increments in value seem most significant when expressed in terms of the length of the tenure required to produce the total net increment. This necessitates the distribution of total increments into annual amounts.

The total net increment or decrement of value accruing to each of the 43 landowners was divided by the number of years in the tenure to derive the annual net increment or decrement accruing to each owner, and this amount was ex-

TABLE IX. LENGTH OF TENURE, NET INCREMENT, AND ANNUAL INCREMENT OF 20 VACANT CHICAGO PROPERTIES

Property Number	Length of Tenure	Total Net Increment	Annual Net Increment	Annual Increment as a % of the Purchase Price
1.....	8	\$8,312	\$1,039	34.63%
2.....	25	261	10	0.88
3.....	10	7,276	727	32.34
4.....	5	5,342	1,068	7.09
5.....	34	126	3	0.01
6.....	4	3,937	984	25.11
7.....	36	3,843	106	3.66
8.....	9	9,943	1,104	122.75
9.....	36	4,900	136	19.98
10.....	32	3,376	105	4.77
11.....	35	2,509	71	6.83
12.....	35	3,349	95	13.67
13.....	34	6,913	203	10.15
	3	1,958	652	13.05
14.....	10	536	53	2.63
	4	2,389	597	14.93
15.....	3	1,166	388	64.81
	1	45	45	2.26
16.....	1	234	234	33.15
	18	49	2	0.54
	1	217	217	16.74
	15	4,294	286	22.07
	18	211	11	0.16
17.....	17	514	30	5.26
	*	404	404	53.71
	*	2,236	2,236	191.61
	*	2,188	2,188	62.52
	33	14,389	436	7.65
	2	11,115	5,557	69.47
18.....	5	353	70	4.71
	13	3,023	232	10.33
	18	7,705	428	5.35
19.....	6	418	69	9.29
	9	1,188	132	9.21
	1	86	86	8.61
	16	1,479	92	8.04
	3	4,674	1,558	30.40
20.....	10	186	18	2.87
	3	151	50	5.05
	5	225	45	4.50
	2	5,312	2,656	252.99
	13	3,989	306	4.72
	5	100	20	0.23

* Less than one year

TABLE X. RELATION OF LENGTH OF TENURE TO INCREMENTS IN VALUE

	NUMBER OF YEARS HELD				
	0 to 5	5 to 10	10 to 15	15 to 20	Over 20
Number of Properties.....	15	9	4	6	9
Sales Value of Properties, 1925.....	\$86,812.95	\$83,983.00	\$23,200.00	\$42,406.03	\$74,800.00
Total Carrying Costs.....	51,555.81	51,024.56	23,375.42	45,117.47	92,175.28
Increment or Decrement.....	35,257.14	32,958.44	— 175.42*	— 3,311.44*	— 17,375.28*
Increment or Decrement as % of Selling Price.	40.61%	39.25%	— 0.76%	— 6.39%	— 23.23%

* Minus sign denotes decrement.

pressed as a ratio of the purchase price of the property (Table IX).

A very great variation is noticeable in the dispersion of the length of the tenures of the properties, and also in the variation of the length of the different tenures of any one property. Property Number 17 was held in six different tenures varying in length from less than one year to 33 years.

The annual net increment of any one when expressed as a percentage of its purchase price varied from 252.99% to 0.01%. However, to 16 of the property owners an annual decrement accrued varying from 0.16% to 33.15%.

An average aggregate net increment was not computed because of the very great variation in the length of tenures. Perusal of the data in Table IX reveals why this figure was not calculated. A large increment of value on a property which was held for a very short tenure gives a very high annual increment or rate of increment. However, in most cases where a decrement was found to exist, the property was held for a very long period of time, so even if the decrement were equally as large as the increment of value in the property held in a short tenure, the annual rate of decrement would be very much smaller. In the computation of an average, then, the short tenures would greatly weight the results,²⁴ and yield a figure which might lead to false conclusions.

Relation of the Length of Tenure to Increments of Value. The data in Tables II and VIII seem to indicate some rela-

tion between length of tenure and net increment of value accruing to the land-owner or investor in real property. For the purpose of determining this relationship, the 43 tenures were treated as individual cases, and a frequency distribution of the cases was made according to the length of the period during which the property was held for investment purposes (Table X).

In view of the fact that the aggregate net increment of those properties held more than five but less than 10 years was practically the same as that for properties held less than five years, we may suppose that the properties in the former group were held on an average probably twice as long as those in the latter group. Hence, if the increment were expressed as an annual return the rate would be approximately only $\frac{1}{2}$ that of the group of properties which were held for the shorter period.

In the case of properties held more than 10 but less than 15 years, as well as those held more than 15 but less than 20 years, decrements in value occurred, with a much larger decrement for the longer period.

Nine of the transactions resulted in properties being held in one tenure for more than 20 years. The selling price of the properties was \$74,800, but the carrying costs totaled \$92,175.28. The

²⁴ If the aggregate annual increment is expressed as a ratio of the purchase price of the properties it is found to be 11.72%. When all tenures of a period of five years or less are excluded the ratio of the aggregate annual increment to the purchase price is 4.19%. This clearly points out the weighting effect of the short tenures.

net decrement of value was \$17,375.25, or 23.23% of the total selling price.

This analysis is exceedingly significant for it clearly points out the tendency of carrying costs to obliterate increments of value accruing to an investor through appreciation if the property is held for any great period of time. Analysis of the transaction history of the 20 Chicago properties plainly indicates that the greatest return is obtained from property held for investment purposes when the property is held for a period of five years or less. It also indicates that rarely when properties are held for more than 10 to 15 years is the increment accruing to the investor sufficient to offset the carrying costs. A corollary to this is that land is a satisfactory investment only for short periods of time.

V. Summary

It is well to emphasize again that the data compiled for this study are not adequate to be used as a basis for any general conclusions concerning increments in the values of vacant subdivided land, but certain of the facts which appeared in the course of the investigation do seem significant.

As a basis for this study an attempt was made to select widely distributed samples of vacant property, but inasmuch as there is little vacant property within the corporate limits in the west portion of Chicago, the properties were necessarily clustered in the north and south sections of the city. The 20 properties selected for this investigation were studied for different periods of time. The shortest period was for four years, from 1921 to 1925. In contrast to this two of the properties were studied for the period of years from 1872 to 1925, or for 53 years.

At the time of purchase, the aggregate value of the properties was \$45,103.53. In 1925 the aggregate value of the properties as evidenced by actual sales prices was \$221,800.00, giving a gross appreciation in value of \$176,696.47.

During this period of time these properties were studied certain carrying costs, or costs of owning land were accumulated. These charges included tax payments, special assessment payments, and interest charges. The total carrying costs, including the purchase price of the properties, amounted to \$164,762.68. Of this amount tax payments amounted to 12.09%, special assessments 8.29%, and interest charges 52.25%. Tax payments bulk very large, and increased 776.47% during the period, while property values were increasing 471.95%. Interest charges are dependent upon the rate of interest used in the computation. While 4% was used in this study, the individual in computing costs of ownership of land should use the rate which he would accept as return on an alternative investment.

The deduction of all carrying costs from the total appreciation of value yields the net increment of property value. The net increment of value of the 20 properties was \$57,038.25, or 25.72% of the 1925 selling prices of the 20 properties. This is an aggregate figure, and should not be construed to mean an annual amount or rate of return. The total net increment accrued as a result of the properties being held for a total of 549 years. An annual distribution of the net increment yielded an annual net increment of \$3,880.00. Expressed as a percentage of the selling prices of the 20 properties, the annual net increment amounted to 1.75%. When expressed as a ratio in terms of the purchase prices of these properties, the

annual net increment amounted to 8.60%. This return is in addition to the 4% compound interest charge which accrues to the owner upon the disposal of property.

The 20 properties studied were held in 43 different tenures which varied in length from two months to 34 years. Fifteen of the properties were held in tenures of less than five years, nine in tenures of more than five years but less than 10 years, four in tenures of more than 10 years but less than 15 years, six in tenures of more than 15 years but less than 20 years, and nine were held more than 20 years by individuals.

While property is held unimproved, it ordinarily yields no income to provide for the costs of owning land. However, an aggregate net increment of value of \$34,002²⁵ accrued to the owners of the 20 properties (a total, not an annual figure). This sum amounted to 11.45% of the 1925 sales value of the properties. This is an amount in excess of the accumulated interest charges of 4% per annum compounded which accrues to the owner at the time of the sale of property.

Annual increments accruing to the owners of vacant properties held for investment purposes varied from an annual increment of 252.99% to a decrement of 33.15% of the purchase price of the property. An average annual increment is not given because of the excessive weighting of short tenures.

The investment analysis of the 20 properties seemed to present three definite conclusions concerning these landed investments. The first of these was that vacant outlying subdivided land is a good investment for short periods only. Landowners who held property for a period of five years or less received an aggregate average increment of 40.61%.

²⁵ This is the total of the increments accruing to the 43 individual owners.

Properties held for less than 10 years but more than five years yielded an aggregate average increment of value of 39.25%. However, in all other cases, the total carrying costs exceeded the sales value of the properties in amounts varying from 0.76% to 23.23%. Present market conditions, with the great number of new subdivisions placed upon the market, and the large resale market, make short tenures quite improbable, even though the investor may desire to liquidate or take a profit in a short period of time.

The second important fact concerning landed investments is the risk element which accompanies such investments. Seventeen of 43 landowners lost upon their investment. Obviously the risk is considerable, making profit here almost conjunctural.

Lastly, in a real estate market of great activity, purchasers tend to pay prices for property which invariably discount future increases in value for many years to come. This is evidenced by the fact that of ten properties which were originally purchased in the period of years from 1887 to 1893 four showed a net decrement while two yielded a net increment of less than 2%.

This investigation has revealed that there has been a very satisfactory increment of value in these vacant subdivided Chicago properties. However, the results obtained must be interpreted in light of the bias caused by the very active real estate market conditions in 1925 in Chicago. A further limitation is the fact that the properties studied were among the most desirable of vacant subdivided properties and that the very great number of cases in which a decrement of value would be found have not been transferred even in a very liquid market such as that of 1925.

Their present desirability for use is indicated by transfer in 1925.

The results here presented do cause one to question the general applicability of the "low returns to land" idea. One cannot reason by analogy from agricultural land as many writers have done. In agricultural land the owner has always erected buildings, plowed fields, raised stock and crops. In other words, he has been operating in a business and

receiving business profits the distribution of which made his land returns very low. Had this study of urban land values included exclusively sites in use (the case in agricultural land) and proper credit given for the services of the use, it is possible that urban land in use might prove to have been a most satisfactory investment during the past decades in the United States.

THE EXPERIENCE OF OREGON WITH POPULAR ELECTION AND RECALL OF PUBLIC SERVICE COMMISSIONERS

By MERTON K. CAMERON

FROM the very inception of commission regulation of public utilities a difference of opinion has existed as to the proper method of choosing the commissioners. Some have favored their appointment by one or more responsible public officials. Others have advocated popular election. Those supporting the former policy usually argue that one or at the most a small committee of public officials is more likely to select competent men for this important position than a busy, disorganized and uninformed electorate, often motivated more by political considerations than any conviction of the fitness of the candidates concerned. They also point out that popular election exposes the commissioners to the whims and even prejudices of a profoundly interested but generally uninformed electorate and hence is apt to result in both short and uncertain terms of office. Such results, it is held, will be automatically reflected in a wavering regulatory policy and a continuous succession of novices more interested in keeping their "political fences" in good condition than in the efficient performance of their duties. This latter evil which is asserted to be inherent in the elective system is intensified, they say, when the recall is applied to public service commissioners since it renders them more responsive to the rapidly changing emotions of the electorate.

On the other hand, those who favor popular election and recall of public officers rest their case chiefly on the ground of making democratic govern-

ment more effective. In a democracy, the argument runs, the aim is to have officials carry out the will of the electorate. But, public officials, once elected, tend to neglect the trust imposed by their electors or, if appointed, are more easily influenced by private groups. To correct these tendencies, to make public officials more responsive to the real wishes of the voters, the latter should have the opportunity, properly safeguarded against abuse, both of electing and recalling their officials, and these arguments, it is said, have added force when applied to public utility commissioners whose powers have a close relation to the well-being of large numbers of consumers.

Public service commissions have been a part of the regulatory machinery of the various states sufficiently long to determine empirically with some degree of accuracy the validity of these arguments. In any study with this object in view, the experience of Oregon is peculiarly significant. The commission in that state is both one of the oldest state mandatory commissions and an outstanding example of popular election and recall of commissioners, a method of selection which, considering the comparatively high political capacity of the average Oregon voter, would seem to have an unusual chance for success. Presentation of Oregon's experience can best be done chronologically. Statements of personal capabilities or motives are published expressions of the time and are introduced only where they appear pertinent in explaining the course of

events. The attempt throughout has been a simple record of facts.

Establishment of the Commission

The Oregon Commission was created by a legislative enactment effective February 18, 1907.¹ The enabling act provided for three commissioners to be chosen for a term of four years; one, by the voters of the state-at-large; one by those of the second congressional district embracing the agricultural, lumbering and sparsely populated counties east of the Cascade Mountains together with Multnomah County lying to the west of that range and including within its boundaries the city of Portland which contains about one-third of the entire population of the state; and one, by the voters of the first congressional district comprising the more industrial and populous counties exclusive of Multnomah west of the Cascades. The first board, however, was to be appointed by a committee designated in the act. The term of office of the appointees from the congressional districts was to expire in July, 1908, and that of the appointee from the state-at-large in July, 1910. Thereafter, the general provisions for the selection of commissioners became effective.

In 1908 the "recall," which provides for the recall of any elective officer in the state by the voters of the district from which he is elected, was adopted through a constitutional amendment and

applied to the members of the Public Service Commission. In 1915 an amendment to the enabling act of 1907 was passed grouping Multnomah with its neighboring counties west of the Cascades and stipulating that each commissioner must be a bona fide resident of the district from which he is chosen.²

On February 19, 1907, in accordance with the provisions of the Commission Act, Oswald West, a Democrat was appointed commissioner from the state-at-large and Thomas K. Campbell and Clyde B. Aitchison, Republicans, from the first and second congressional districts respectively.³ The appointees were practically unknown outside of their small circle of personal and business acquaintances and, with the exception of Mr. Campbell, were young men with restricted business experience and relatively small incomes.⁴

Pre-War Period, 1907-1917

Election of Commissioners. At the general election in 1908 both Messrs. Campbell and Aitchison were elected to succeed themselves. In 1910, however, Frank J. Miller was chosen to take the place of Mr. West who, being the Democratic nominee for Governor, was not a candidate for election.⁵ On December 1, 1910, Mr. West, successful in his candidacy for the governorship, resigned from the Commission⁶ and commissioner-elect Miller was appointed to fill out the remainder of his term.⁷

¹ Ch. 53, Laws of Oregon, 1907.

² Ch. 71, Laws of Oregon, 1915.

³ See 1st *Annual Report of the Railroad Commission of Oregon*, 1907, p. 3.

⁴ Mr. West had originally been a bank teller, but in September, 1903, he had been chosen by Governor Chamberlain as State Land Agent, the position which he was holding at the time of his appointment to the Commission. Mr. Campbell was a lumber manufacturer and Mr. Aitchison a lawyer. (See *The Portland Oregonian*, Feb. 20, 1907, p. 5 and Sept. 26, 1910, p. 10, for a resumé of the qualifications of this commission.) Mr.

Aitchison had served as clerk of the so-called "Mulkey Tax Commission" created by Chapter 90 of the General Laws of 1905. (See report of the Board of Commissioners appointed under the act, Salem, Oregon, 1906, p. 3.)

⁵ Mr. Miller had served two years in the State Senate and had had seven years experience in railroad operating and construction departments. (See State of Oregon, pamphlet containing cuts and statements of Republican candidates, May 15, 1914, p. 31.)

⁶ See 4th *Annual Report of the Railroad Commission of Oregon*, 1910, p. 3.

⁷ *Ibid.*, 5th *Annual Report*, 1911, p. 3.

Early Changes in the Personnel of the Commission. No changes in the personnel of the Commission as constituted by the above elections occurred until 1916. In that year, Mr. Campbell of the Western district was a candidate for a third term. His opponent in the May Republican primaries was Fred G. Buchtel of Portland, Multnomah County. To the surprise of everyone, Mr. Buchtel won by an overwhelming majority. His victory apparently was due primarily to the vote in Multnomah County which gave its "native son" a majority of 15,311 or 45 more votes than his majority in the State as a whole.⁸

No tangible reason for the defeat of Mr. Campbell appeared other than the difficulty of surmounting the political strength and popularity of Mr. Buchtel in his home county. Mr. Buchtel's training and experience were as follows: After attending the public schools of Portland, he had been an employee in the city engineer's office, operator of the Morrison street bridge draw, manager of the Multnomah County Board of Relief, city sealer of weights and measures and state sealer of weights and measures, the position which he was holding at the time of his nomination.⁹ Mr. Campbell, on the other hand, had been a member of the Commission from its inception and by common repute had always performed the duties of the office efficiently and conscientiously.¹⁰ Nor does there seem to have been any dissatisfaction with the work of the Commission as a whole other than a possible undercurrent of unrest on the part of the extreme conservatives and radicals, the former feeling that the Commission

had gone too far in the readjustment of rates downward and the latter that it had not been severe enough.¹¹

At these same primary elections of 1916 in which Mr. Campbell was defeated, H. H. Corey was chosen as the Republican nominee for the eastern district to succeed Mr. Aitchison who was not a candidate for reelection.¹² In the summer Mr. Aitchison resigned to become solicitor for the Valuation Committee of the National Association of Railway Commissioners and Mr. Corey was appointed to serve during the remainder of his term.¹³ At the general elections in November both Messrs. Buchtel and Corey were elected and on January 1, 1917, they were duly installed in office.

The Commission Under the Pressure of the Rising Costs of the War Period, 1917-1924

Street Railway Fare Case and Defeat of Mr. Miller. In 1917 applications for rate increases began to come before the Commission. Among these was one of the Portland Railway, Light and Power Company which furnished the City of Portland and its suburbs with electric light and power and street railway service. This Company filed a petition on August 3, 1917, for an increase in rates on its street railway lines. After hearing, the Commission issued recommendations that the Company effect certain enumerated operating economies and that the City abrogate a number of franchise

⁸ *The Oregon Voter*, June 24, 1916, pp. 24-25, contains the official returns.

⁹ See *Ibid.*, May 10, 1924, p. 12, for a resumé of Mr. Buchtel's record.

¹⁰ *Ibid.*, May 13, 1924, p. 42.

¹¹ *Ibid.*, May 20, 1916, pp. 10-11.

¹² This was probably because of the law of 1915 mentioned above which transferred Multnomah County containing the city of Portland, where Mr. Aitchison resided and possessed most of his political strength, from the eastern to the western district and further stipulated that each member of the Commission be a bona fide resident of the district he represented. (See *The Oregon Voter*, June 17, 1916, p. 7.)

¹³ See 10th *Annual Report of the Public Service Commission of Oregon*, 1916, p. 3.

requirements which tended to inflate operating expenses, and ordered a small increase in fares when sold in books of 50 or for school purposes.

On December 10, 1917, the Company petitioned again for an increase in rates, alleging repeated wage increases and the failure of the City to remove the aforesaid franchise burdens as recommended by the Commission. Consequently, on January 5, 1918, that body handed down a decision substituting a 6-cent fare for the 5-cent fare previously prevailing in conformity with an express provision to this effect in the petitioner's franchise. All cash fares, however, included transfer privileges; books of 50 could be purchased in unlimited amounts at a rate of $5\frac{1}{2}$ cents and limited school children's tickets for 4 cents.¹⁴ This decision immediately raised a veritable storm of protest in the course of which the Commission expressed willingness to reopen the case on the merits provided that a formal application for a rehearing accompanied by sufficient evidence to show that the decision was erroneous was submitted.¹⁵

On February 1 Commissioner Corey issued a statement through the press presumably with the hope of clarifying the decision. He pointed out that the valuation of the Company's property was as low as the courts would allow, that the increase in fares would barely meet recent wage awards, that the net return under the new rates would be less than $1\frac{1}{4}\%$ on the existing valuation, that a failure to increase the rates therefore would have compelled a receivership with an attendant reduction in service and that contrary to the general

belief there was no undue inflation of operating costs from excessive charges for power by the electric department of the Company.¹⁶

Six weeks later Commissioner Buchtel made a public statement implying that if the City of Portland would remove the various franchise burdens, as previously suggested by the Commission, the 6-cent fare order would at least be modified. Thereupon, the East Side Business Men's Club addressed a letter to the Commission asking whether it would agree to restore the 5-cent fare if this were done.¹⁷ Messrs. Miller and Corey replied that they would take cognizance of such an action on the part of the City in any future readjustment of rates.¹⁸ Mr. Buchtel, however, wrote a minority reply so phrased as to give the impression of a promise to do so.¹⁹

On May 17, while the hostility of the people of Portland toward the 6-cent fare order was at its height, occurred the annual primary election. It so happened that Mr. Miller, commissioner from the state-at-large, was a candidate for renomination on the Republican ticket. His opponent was Fred A. Williams, a graduate of the University of Iowa and the recipient of a law degree therefrom in 1900. Mr. Williams had practiced in Council Bluffs until 1906 when he moved to Grants Pass, Oregon, where he continued to follow his profession and served for a time as City Attorney.²⁰

Mr. Miller presented to the voters no slogan or platform. Mr. Williams, however, offered as his slogan the very suggestive and pithy sentence, "A 6-cent fare is too much for a 5-cent ride," and in his platform promised if elected to

¹⁴ 12th *Annual Report* of the Public Service Commission of Oregon, 1918, pp. 14-24, contains this decision in full together with a brief history of the case.

¹⁵ See *The Oregon Daily Journal*, Jan. 10 and 11, 1918, pp. 7 and 2 respectively.

¹⁶ *Ibid.*, Feb. 1, 1918, p. 6.

¹⁷ *Ibid.*, *supra* n. 15.

¹⁸ *Ibid.*, Jan. 29, 1918, p. 2.

¹⁹ *Ibid.*, Feb. 2, 1918, p. 2.

²⁰ Mr. Williams's qualifications were reviewed in *The Oregon Voter*, Apr. 29, 1918, p. 10.

use the sworn tax statements of the utility corporations as the basis for determining the reasonableness of rate advances.²¹ Since the rate-making valuations of the various utilities in the state as fixed by the Public Service Commission were considerably greater than those used for taxation, this promise implied that as Commissioner he would not only favor the abrogation of the 6-cent fare order on this ground but would also oppose rate increases on the part of all the utilities under the jurisdiction of the Commission until they were justified on this lower valuation. When the final returns from the election were all in, Mr. Williams was found to have won by a majority of 658 votes.²² Though his opponent had carried 22 out of the 36 counties in the state, his majority therein was inadequate to offset his losses in the more populous Multnomah and adjacent counties where the 6-cent fare decision had aroused so much antagonism. Mr. Williams was successful, also, at the general election in November.

It was generally conceded at the time that Mr. Miller's defeat was attributable solely to the fact that he was a party to the 6-cent fare order so deftly suggested by his opponent's slogan and all available evidence would seem to confirm this conclusion.²³ The opposition to him as disclosed by the election returns was primarily concentrated in those counties affected by that decision. Furthermore, Mr. Williams had made no campaign, no speeches, and no promises other than those implied in his slogan and platform, nor had even the most ardent opponents of the defeated Commissioner

ever seriously questioned his conscientiousness, efficiency or honesty. Three points are interesting to note in this connection: the Commission, with Mr. Miller's concurrence, had expressed willingness to hold a rehearing if any reasonable evidence of error were presented; the reasons for the disputed decision had been published in the press; and Mr. Miller himself had shown an inclination to compromise.

Immediately subsequent to the May, 1918, primary election the operating costs of the street railway department of the Portland Railway, Light and Power Company were further expanded by new rises in prices and wages. Consequently, on August 15, 1919, the Company applied to the Public Service Commission for another increase in fares alleging that its net revenue during the previous fiscal year had been inadequate to meet its interest obligations and maturing street improvement assessments and predicting that net revenue would be even less during the following year.²⁴ Thereupon, the City of Portland employed J. P. Newell, a local engineer, to investigate the street railway situation. He reported that an 8-cent fare with strips of tickets sold at 14 for \$1.00 or a 7-cent fare with a universal 1-cent transfer charge would be necessary to produce sufficient revenue to meet the Company's necessary requirements.

On March 3, 1920, the Public Service Commission replied to the above petition recommending that the City purchase and maintain the rails of the street railway company and relieve it of those franchise requirements mentioned in previous orders and denying any change in rates until some action

²¹ *Ibid.*, Apr. 27, 1918, p. 10.

²² *Ibid.*, June 15, 1918, p. 5, contains the official returns.

²³ *Ibid.*, Apr. 29, 1922, p. 10, and Nov. 2, 1918, pp. 14-15; also *The Morning Oregonian*, Feb. 22, 1922, p. 8, and *The Oregon Daily Journal*, May, 1918, p. 8.

²⁴ See *The Morning Oregonian*, Aug. 16, 1919, p. 6, and the 14th *Annual Report* of the Public Service Commission of Oregon, 1920, p. 22, for the contents of this application.

had been taken on these suggestions.²⁵ In case these recommendations were acted upon favorably, the Commission held out the prospect of a fare even less than the then existing 6-cents. The order was signed by Messrs. Buchtel and Williams. Commissioner Corey dissented on the grounds that the finances of the Company warranted an immediate increase of fares to at least 7 cents and a review of same should the people of Portland decide to follow the Commission's suggestions. Such an eventuality, he believed, was very unlikely since public ownership of rails was practically unknown and the removal of the Company's franchise burdens had already been defeated once at the polls.

This decision was regarded by many as a political expedient to postpone definite action on the matter until after the primary elections set for May 21 in which both Commissioners Corey and Buchtel were candidates for renomination.²⁶ Whatever the truth of these allegations, both candidates won by overwhelming majorities and were successful also at the general election in November.²⁷ This victory of the incumbent candidates at the primary elections was significant when we recall that only two years before they had been participants in the 6-cent fare order which had resulted so disastrously for Mr. Miller. The victory of Mr. Buchtel, representing the western district including the City of Portland, was particularly significant. Though the hostility to that decision had been largely concentrated there and his op-

ponent, Mr. Cousin, had taken an aggressive stand against the Commission's policy of increasing public utility rates, his majority in Multnomah County was almost three to one.

In the meantime both of the Commission's suggested methods of relief had come to naught, purchase of the Company's rails being held unconstitutional by the city attorney and the removal of its franchise restrictions being defeated again at the polls.²⁸ Consequently, on May 26, the Portland Railway, Light and Power Company filed a new petition with the Commission for fare increases on the ground that the voters had definitely rejected the Commission's recommendations as set forth in its previous order.²⁹ The question was now squarely before the Commission which was unhampered by an impending election and completely thwarted in its attempts at compromise. On June 1 hearings on the case were resumed³⁰ and nine days later a decision³¹ was handed down making cash fares 8 cents. Blocks of six, however, could be purchased for 7½ cents and limited school tickets for 4 cents. The order was compelled, according to the Commission, because the City had not complied with its suggested methods of relief. Commissioner Williams being absent on business did not participate in the decision.³² In commenting on the order, *The Oregon Voter* expressed the opinion that it was the apparent vote of confidence in the Commission as indicated by the returns from the primary election that prompted Mr. Buchtel to support

²⁵ The entire order was published in *The Morning Oregonian* of March 24, 1920, pp. 8-9. See also statement of Mr. Buchtel before the Portland City Council quoted in *The Oregon Daily Journal*, March 26, 1920, p. 1.

²⁶ See *The Oregon Voter*, March 27, 1920, p. 10, and *The Morning Oregonian*, March 24, 1920, p. 8.

²⁷ See *The Oregon Voter*, June 26, 1920, p. 40, for the official returns.

²⁸ 14th *Annual Report* of the Public Service Commission of Oregon, 1920, p. 43.

²⁹ *The Oregon Daily Journal*, March 30, 1920, p. 1, carried a resumé of this petition.

³⁰ *The Morning Oregonian*, June 1, 1920, p. 6.

³¹ 14th *Annual Report* of the Public Service Commission of Oregon, 1920, pp. 43-47.

³² *The Oregon Voter*, June 19, 1920, p. 19.

Mr. Corey in this order.³³ Whether the vote was so intended or not, the fact remains that the decision was received by the public without protest when only two years before an increase of 1 cent had resulted in the removal of a Commissioner who had served eight years.³⁴

The Telephone Rate Case and Recall of Commissioners Buchtel and Williams. On November 13, 1920, the Pacific Telephone and Telegraph Company, the corporate subsidiary of the American Telephone and Telegraph Company operating in Oregon, applied to the Public Service Commission for authority to increase its exchange rates, alleging a rise in operating costs. Twice before attempts had been made to obtain a general increase in telephone rates in the state.³⁵ Both, however, had been frustrated, except as to slight advances in certain special services, by the Commission after investigation started on its own initiative primarily on the ground that any rate adjustments of a comprehensive nature were inadvisable until economic conditions were more stable. The Commission, believing that the time had come for a permanent settlement of this question, held a hearing and issued an order setting forth a complete schedule of rates for the company.³⁶ Though these rates were considerably higher than those in the previous schedule, they were less than had been requested and were contingent upon

expenditures for specified extensions and an increased operating force.

In spite of the fact that a long investigation³⁷ had preceded this order, the ruling had hardly been handed down when petitions to recall the Commission began to be circulated. Before sufficient signatures could be obtained, however, the Portland City Council requested and secured a rehearing of the case. Upon the close of this rehearing the Commission handed down an order³⁸ confirming its previous order in every respect and incidentally severely criticizing the petitioners for demanding a rehearing on such flimsy evidence of error as that presented.

The publication of this decision resulted in an outburst of public indignation which was probably due as much to its sarcastic phraseology as to its actual content.³⁹ An appeal was⁴⁰ immediately taken to the courts by a committee composed of Robert C. Duncan, John F. Risley and Dora Shreve and the recall movement which had been started subsequent to the original order but permitted to languish during the rehearing was revived. Whether so intended or not, this dormant recall had been regarded by the Commission during the period of the rehearing as a club to induce it to

³³ *Ibid.*, June 19, 1920, p. 18.

³⁴ See *The Oregon Daily Journal*, June 15, 1920, p. 1, for comments on the public attitude toward this decision.

³⁵ One of these had been made by Postmaster General Burleson in 1918 while the Company was under federal control and the other by the Company itself shortly after its release therefrom on July 31, 1919 (See 13th *Annual Report of the Public Service Commission of Oregon*, 1919, pp. 32-58 and 114-121).

³⁶ 15th *Annual Report of the Public Service Commission of Oregon*, 1921, pp. 29-42, for order in full.

³⁷ Fourteen months had been occupied with hearings and investigations. One hundred witnesses had been examined, their testimony covering approximately 1,000 pages. More than 200 exhibits had been received and studied. The total expenditure incurred by the various participants was estimated at more than \$250,000. (16th *Annual Report of the Public Service Commission of Oregon*, 1922, p. 50, for the scope of these investigations.)

³⁸ *Ibid.*, pp. 36-53.

³⁹ See *The Morning Oregonian*, Feb. 22, 1922, p. 5, and Feb. 24, 1922, p. 6.

⁴⁰ This appeal was finally dismissed on stipulation of the parties concerned on January 20, 1926. For the history of the case see *The Morning Oregonian*, Aug. 23, 1922, p. 11, Aug. 25, 1922, p. 7, and Sept. 2, 1922, pp. 1 and 3.

modify its previous order in the ensuing decision.⁴¹

On April 25, 1922, the recall committee consisting of Robert C. Duncan, Ellis Richardson and F. S. Meyers, all of Portland, filed with the Secretary of State petitions containing sufficient signatures to recall Commissioners Buchtel and Williams of the western district and state-at-large respectively.⁴² This action was taken relative to Mr. Williams in spite of the fact that his term of office ended within less than eight months and he had already announced his intention of not being a candidate for re-election, alleging as his reasons (1) the storm of criticism to which he had been subjected for rendering decisions in accordance with his best judgment and (2) the inadequacy of the salary.⁴³

Both Commissioners Buchtel and Williams decided to submit their case to the people rather than resign, the only other alternative under the law. Mr. Buchtel took this stand on the ground, as he said, that he saw no reason why he should resign in response to a movement engendered by a small group of candidates for office unless a majority of the people willed it.⁴⁴ Mr. Williams, also, pointed out in his reply that he could not resign in good conscience without an expression of the majority of the electorate.⁴⁵

J. M. Kerrigan, Newton McCoy and Edward Ostrander filed as recall candidates, Mr. Kerrigan opposing Commissioner Williams and Messrs. McCoy and Ostrander against Commissioner Buchtel.⁴⁶ Both Kerrigan and McCoy made a spirited campaign in which they practi-

cally promised to reduce both telephone and street car fares to the pre-war level.⁴⁷ The fact that the former was an ex-service man was "played up" and finally it was argued that the success of the so-called Oregon system was dependent upon the success of this recall.⁴⁸ Commissioners Buchtel and Williams, on the other hand, made no campaign. In fact, even had the duties of their office permitted and had they been disposed to do so, the three weeks intervening between the time of the actual filing of the recall petitions and the election were wholly inadequate for them to acquaint the public fully with their side of the case.⁴⁹ It was not surprising, therefore, that at the election held on May 19 in conjunction with the primaries both Commissioners were defeated, Mr. Kerrigan being elected to serve out the remainder of Mr. Williams' term and Mr. McCoy that of Mr. Buchtel.⁵⁰ The successful nominees assumed office on June 1.

Both Messrs. Kerrigan and McCoy were Portland attorneys. Neither candidate was well known to the general body of the electorate and neither was reported to be experienced in the problems of public utility regulation.⁵¹ On the other hand, Mr. Buchtel had been a member of the Commission for five years and five months and Mr. Williams, for three years and five months at the time of their retirement. Nor was there any evidence, other than unsubstanti-

⁴¹ *Ibid.*, May 10, 1922, p. 11.

⁴² See Mr. Buchtel's letter to the Secretary of State acknowledging the filing of the petition for his recall. (*The Oregon Daily Journal*, Apr. 29, 1922, pp. 1-2.)

⁴³ *Ibid.*, Apr. 26, 1922, p. 5.

⁴⁴ See *The Morning Oregonian*, March 25, 1922, p. 8.

⁴⁵ *The Oregon Daily Journal*, Apr. 29, 1922, pp. 1-2.

⁴⁶ *Ibid.*, Apr. 30, 1922, p. 18.

⁴⁷ *Ibid.*, May 9, 1922, p. 3.

⁴⁸ The significance of the argument that the success of the Oregon system depended upon the success of the recall lay in the fact that the recall had been resorted to only twice before since its adoption in 1908 and in neither of these instances had it been attempted on a state-wide scale. (*Ibid.*, Apr. 23, 1922, p. 11.)

⁴⁹ *The Oregon Voter*, May 13, 1922, p. 44.

⁵⁰ The vote was as follows: Kerrigan 37,704, Williams 16,548; McCoy 21,955, Buchtel 20,643, Ostrander 12,253.

⁵¹ See *The Oregon Voter*, May 20, 1922, pp. 38-39.

ated accusations adduced during the campaign, of inefficiency or violation of oath of office on the part of the deposed Commissioners.⁵²

At this same primary election, Thomas K. Campbell, member of the Commission from its inception until his defeat by Mr. Buchtel in 1916, was nominated as the Republican candidate to succeed Mr. Williams who, as we have seen, was not a candidate to succeed himself.

Failure of the Successful Recall Candidates of Re-election. It was generally expected, especially by the more ardent

advocates of the recall, that Commissioners McCoy and Kerrigan would upon assuming office immediately effect a general reduction of all public utility rates since their election was regarded as an emphatic demand by the public for rate reduction and the position taken by them during the campaign was thought to pledge them to such action.⁵³ A move of this kind was considered especially likely on the part of Mr. Kerrigan in order that by capitalizing the ensuing public good will he might

⁵² *Ibid.*, May 20, 1922, p. 39.

⁵³ *The Oregon Daily Journal*, May 21, 1922, p. 4, and *The Morning Oregonian*, June 16, 1922, p. 15.

TABLE I. TABULATION OF HISTORY OF OREGON PUBLIC UTILITY COMMISSIONERS

Name	Party Affiliation	District Represented	Term of Office	Occupation	Residence	
1. Thomas K. Campbell.....	R	Western	February 19, 1907 to January 1, 1917*	Lumber Manufacturer	Cottage Grove	None
2. Clyde B. Aitchison.....	R	Eastern	February 19, 1907 to June 12, 1916†	Lawyer	Portland	Clerk
3. Oswald West.....	D	State-at-large	February 19, 1907 to December 1, 1910‡	State Land Agent	Portland	Man La
4. Frank J. Miller.....	R	State-at-large	December 1, 1910 to January 1, 1919§	Railroad Employee	Albany	State
5. Fred G. Buchtel.....	R	Western	January 1, 1917 to June 1, 1922	State Sealer of Weights and Measures	Portland	City lan Ser
6. H. H. Corey.....	R	Eastern	June 12, 1916 to December 31, 1928	Secretary of Commission	Baker	Clerk
7. Fred A. Williams.....	R	State-at-large	January 1, 1919 to June 1, 1922	Lawyer	Grants Pass	City
8. T. M. Kerrigan.....	R	State-at-large	June 1, 1922 to January 1, 1923	Lawyer	Portland	None
9. Newton McCoy.....	D	Western	June 1, 1922 to January 1, 1925	Lawyer	Portland	None
10. Thomas K. Campbell.....	R	State-at-large	January 1, 1923 to November 9, 1926	Contractor	Portland	Publi
11. Edward Ostrander.....	R	Western	January 1, 1925 to January 1, 1929	Secretary of Commission	Portland	Secre
12. W. A. Delsell.....	D	State-at-large	November 9, 1926 to January 1, 1927	Secretary to Governor	Klamath Falls	Secre
13. Louis E. Bean.....	R	State-at-large	January 1, 1927 to January 1, 1931	Lawyer	Eugene	State

* Mr. Campbell's elected term began January 1, 1909.

† Mr. Aitchison's elected term began January 1, 1909.

‡ Mr. West was never a candidate during the period of election.

run as an independent candidate against Mr. Campbell at the autumn election with a reasonable chance of success.⁵⁴

On June 28 Mr. Kerrigan presented a resolution to the Commission directing the attorney-general to withdraw the reply of the recalled Commission to the above-mentioned Duncan appeal from the order increasing telephone rates which denied the allegations of the complainants.⁵⁵ Mr. Kerrigan apparently believed that this would cause the court to vacate the order and thereby auto-

matically place in effect the tariff prevailing prior thereto. The resolution, however, failed for want of a seconder.

The Commission immediately received an avalanche of letters and telegrams demanding some action as to telephone rates. Some of these were said to have threatened to retire the the Commissioners unless they kept faith with the voters responsible for their election.⁵⁶ Consequently on August 9 Mr. Kerrigan presented a second resolution to the Commission stating

⁵⁴ *The Morning Oregonian*, June 18, 1922, p. 1.

⁵⁵ *Ibid.*, June 29, 1922, pp. 1-3.

⁵⁶ *Ibid.*, Aug. 10, 1922, p. 3.

PUBLIC SERVICE COMMISSIONERS, 1907 TO DATE.

Residence	Offices of Political Preferment Held †	Causes of Withdrawal from Commission
Cottage Grove	None	Defeated by Mr. Buchtel at May 19, 1916, Republican primaries. No definite reason for defeat evident.
Portland	Clerk of "Mulkey Tax Commission"	Resigned, probably because of law of 1913 redistricting state, making it impossible for him to be a candidate to succeed himself.
Portland	Manager, Governor Chamberlain's gubernatorial campaign; State Land Agent	Resigned to become Governor.
Albany	State Legislature	Defeated at May 19, 1918, Republican primaries on 6-cent fare decision.
Portland	City engineer's office, Portland; operator of bridge draw in Portland; Multnomah County Board of Relief; Portland and State Sealer of Weights and Measures.	Recalled because of his decision in the telephone case.
Maker	Clerk in office of Secretary of State; Secretary of Commission	Incumbent, elected term expiring, December 31, 1928, as per recent law changing method of choosing Commissioners.
Grants Pass	City Attorney of Grants Pass	Defeated at May, 1922, recall election because of his decision in the telephone case.
Portland	None	Defeated at November, 1922, general election because of decisions. ¶
Portland	None	Defeated at general election November, 1923, because of decisions. ¶
Portland	Public Service Commissioner	Death
Portland	Secretary of Commission	Incumbent, elected term expiring December 31, 1928, as per recent law changing method of selection of Commissioners.
Hamath Falls	Secretary to Governor	Appointed by Governor at death of Mr. Campbell—not a candidate for election.
Eugene	State Legislature	Incumbent; elected term expiring December 31, 1930, as per recent law changing method of selecting Commissioners.

† Mr. Miller's elected period began January 1, 1911.

‡ No attempt has been made to list all the offices of political preferment held.

¶ This took the form of failure to effect decisions reducing rates as per election pledges.

that both he and McCoy were obligated to the voters to take some action looking toward a reduction of telephone rates and suggesting a procedure to this end somewhat similar to that advocated in his previous resolution. This resolution carried with Mr. Corey dissenting.

Whether motivated by the above action of the Commission or not, the fact remains that one week later Mr. Kerrigan was nominated as an independent candidate to run against Mr. Campbell at the November election by a group of 128 people of the City of Portland presided over by Robert C. Duncan, a member of the committee recalling Messrs. Williams and Buchtel and one of the complainants appealing the disputed telephone order to the courts.⁵⁷ At this meeting, the Commission was criticised severely for not having effected a reduction of public utility rates and some dissatisfaction was expressed because it had not made a sweeping change in its personnel to reward the more deserving supporters of the recall for their labors in its behalf.

Apparently despairing of securing an immediate reduction of telephone rates through legal processes, the Commission passed on September 9 a resolution ordering a rehearing of the case.⁵⁸ This resolution referred to the widespread dissatisfaction with the existing tariffs, pointed out that the two new members had been elected to reduce them and concluded with the assertion that the Commission was convinced that they were both unreasonable and discriminatory. This rehearing began on October 2 as ordered but was immediately postponed until October 26.⁵⁹

In the meantime, Robert C. Duncan, who, as we have seen, had been a leading

figure in appealing the order to the courts, a member of the committee recalling Messrs. Buchtel and Williams and chairman of the meeting nominating Mr. Kerrigan as an independent candidate to succeed himself, sent a letter to the press in which he discharged W. E. Richardson, another member of the recall committee, as attorney in the telephone case before the courts, "lambasted" the Commission and defended the Telephone Company. He alleged as his reasons for this action that Commissioner Kerrigan and Mr. Richardson, who was acting as his campaign manager, had failed to make a "house-cleaning" in the offices of the Commission with the result that the old regime was still functioning there and that Mr. Richardson was an ally of the "traction trust." Mr. Richardson replied that Mr. Duncan was "sore" because he had not been appointed secretary of the Commission and F. S. Meyers, another member of the recall committee, made Portland Examiner as per a slate arranged in case the recall election were successful.⁶⁰

On October 26 the rehearing postponed from October 2 was resumed. Four days later the Commission handed down a temporary order reducing rates for certain classes of service until such time as a thorough investigation could be made, stipulating a number of specified operating changes designed to improve the service and directing the Company to prepare and present certain information relative to the financial, operating and organizational phases of its business.⁶¹ Mr. Corey dissented from this order on the ground that the evidence taken was insufficient to en-

⁵⁷ *Ibid.*, Oct. 3, 1922, p. 13.

⁵⁸ *Ibid.*, Oct. 8, 1922, p. 16, gives a summary of this controversy.

⁶¹ 16th Annual Report of the Public Service Commission of Oregon, 1922, for the contents of this order; see also *The Morning Oregonian*, Oct. 31, 1922, p. 1.

⁵⁷ *The Morning Oregonian*, Aug. 19, 1922, p. 6, carried a report of the proceedings of this meeting.

⁵⁸ *Ibid.*, Sept. 10, 1922, p. 8, for a resumé of this resolution.

able him to give a fair decision. The Telephone Company, however, immediately sought and secured from the United States Circuit Court an injunction restraining its enforcement.⁶²

On the day that the above order was handed down Mr. Duncan is reported to have appeared before the Commission and branded it a political expedient to give Mr. Kerrigan a campaign slogan at the coming election.⁶³ Whether so intended or not, it apparently failed to further his political fortunes, for he was defeated by Mr. Campbell, the Republican nominee, by an overwhelming majority.⁶⁴ Even Multnomah County, containing the City of Portland which had been largely responsible for Mr. Campbell's defeat by Mr. Buchtel six years before and which had, also, gone against him in the primaries, gave him a substantial majority.⁶⁵

On June 4, 1923 the rehearing which had been postponed the previous October was reopened with Mr. Campbell occupying Mr. Kerrigan's place on the Commission. After a number of postponements it was finally concluded and a decision rendered confirming with a few minor exceptions the rates set in the original order, directing the Company to refund certain moneys collected in violation of that order and stipulating that business service in Portland be metered.⁶⁶

In the May primaries preceding this order nominations for commissioner from the two districts had been made as per the Commission Act. The candidates in the western district were Commissioner McCoy, unopposed on the Democratic ticket, and Messrs. Charles L. Brown, E. T. Busselle and Edward Ostrander on the Republican ticket. For the eastern district, Mr. J. D. Brown was the only Democratic candidate and Mr. Corey, the incumbent, was opposed by Robert Service for the Republican nomination.⁶⁷ The returns from the election showed that Messrs. Ostrander and Corey were chosen to represent the Republicans in their respective districts.⁶⁸ At the general election in November, Mr. Ostrander carried every county in his district and in the eastern district Commissioner Corey was reelected by a majority of more than two to one.⁶⁹

Mr. Ostrander was unquestionably well qualified for the commissionership and, as was to be expected, his pre-eminent fitness for the position was "played-up" in the campaign.⁷⁰ No attempt, however, was made to conciliate the radical rate-reductionists. In fact, his slogan was the very conservative pronouncement, "Fair and fearless administration of the duties of the office."⁷¹ Mr. McCoy, on the other hand, had been elected at the 1922 recall election on a platform of rate reduction and his

⁶² *The Morning Oregonian*, Nov. 1, 1922, p. 22 and Nov. 26, 1922, p. 14.

⁶³ *Ibid.*, Oct. 31, 1922, p. 13.

⁶⁴ The vote stood: Campbell 112,054 and Kerrigan 39,345. (*The Oregon Voter*, Dec. 9, 1922, p. 29.)

⁶⁵ The vote in Multnomah County was Campbell 35,799 and Kerrigan 17,884.

⁶⁶ 18th *Annual Report of the Public Service Commission of Oregon*, 1924, pp. 73-74.

⁶⁷ See *The Oregon Voter*, Apr. 19, 1924, p. 18, for a list of the candidates.

⁶⁸ *Ibid.*, June 28, 1924, p. 12, contains the official returns.

⁶⁹ The vote in the western district stood: Ostrander 108,278 and McCoy 78,013. (See *The Oregon Voter*,

Dec. 13, 1924, p. 22, for official returns for both districts.)

⁷⁰ After serving for a number of years with the local railroads, Mr. Ostrander had accepted the position of traffic manager for the Oregon and Washington lumber manufacturers. In 1913 he had been appointed rate expert for the Oregon Commission and later became its secretary. During the World War he had been employed by the Federal government to consolidate and expedite train load shipments of lumber to the east for war purposes. Later he had assisted the Inland Empire Shipper's League in a fight for lower grain rates and at the time of his election was again serving as secretary of the Commission.

⁷¹ *The Oregon Voter*, Apr. 19, 1924, p. 18.

TABLE II. SUMMARY OF CHANGES IN PERSONNEL OF OREGON PUBLIC SERVICE COMMISSION, 1907 TO DATE.

Approximate Average Term of Office.....	Distribution	By periods	1924—to date—about 4 yrs. 1917-1924—4 yrs. 1909-1917—8 yrs.		
		By districts	Western—3 yrs. 1 mo. Eastern—10 yrs. 2 mos. State-at-large—3 yrs. 11 mos.		
		General Average	5 yrs. 6 mos.		
Changes in Personnel by Election.....	Causes	Defeat at polls	Causes	Dissatisfaction with decisions—5 Not discernible—1	
				Number	Distribution
		By periods	1924—to date—0 1917-1924—5 1909-1917—1		
		By districts	Western—3 Eastern—0 State-at-large—3		
		Voluntary	Causes	Total—6 Resignation—1 Death—1	
	Number—2*				
	Actual		By districts	Western—3 Eastern—1 State-at-large—4	
			Possible—12		
			Total—8		

* In the distribution according to time one of these changes took place in the period 1924-to date and the other in the period 1909-1917. In the distribution by districts one change took place in the eastern district and one in the state-at-large.

policy as Commissioner, though less militant with the passage of time, was fairly consistent therewith.⁷² Moreover, in his platform, he had reiterated his conviction that rates should be revised downward and his slogan,⁷³ "Militant opposition to excessive rates will win, I am no quitter," had implied at least willingness to fight for his convictions.

Mr. Corey was re-elected on his record which indicated that he was favorable to the Commission's policy of upward rate revision criticized so severely by the public. He was successful, too, in spite of the fact that his opponents in their slogans at both the

primary and general elections had implied a pledge to reduce rates.⁷⁴

The Commission Since 1924

The Last Election. In 1926 the selection of a Commissioner from the state-at-large was in order. At the May primary election Mr. Campbell, the incumbent, became the Republican candidate without opposition and Clyde T. Spooner of Portland was chosen by the Democrats to run against him.⁷⁵ During the course of the summer, however, Mr. Campbell resigned from the ticket because of ill-health and Louis E. Bean of Eugene was appointed to run in his place.⁷⁶ In November Mr. Camp-

⁷² In fact, in the final telephone decision rendered on March 21, 1924, he had written a long dissenting opinion alleging that the evidence and facts in the case warranted a greater reduction in rates than had been granted.

⁷³ *The Oregon Voter*, Apr. 19, 1924, p. 18.

⁷⁴ *Ibid.*

⁷⁵ *Ibid.*, Apr. 24, 1926, p. 11, contains a list of the various candidates with their platforms and slogans.

⁷⁶ *Ibid.*, Oct. 30, 1926, p. 18. Mr. Bean was a lawyer and had been a member of the State Legislature for some 15 years.

bell died and Governor Pierce, a Democrat, appointed his secretary, also a Democrat, to serve the remaining month and 21 days of his term. Mr. Bean was elected by a large majority at the general election in November.⁷⁷

Change in Method of Selecting Commissioners. In the meantime an undercurrent of dissatisfaction persisted even though open hostility to the Commission had ceased. This was attributable primarily to the belief that the repeated upward adjustment of rates during the previous years proved that the Commission in spite of the recall had become a "servant of the utilities." This fault, it was thought, arose from the fact that the voters did not have the time and facilities for judging the qualifications of Commissioners. Hence, appointment and removal by the Governor was suggested as the proper remedy.⁷⁸ With these ideas in mind a bill was introduced in the 34th Legislature which convened in the winter of 1927 providing for the appointment of the Commissioners by the Governor at the close of the terms of office of the present incumbents.⁷⁹ This bill passed both houses practically without opposition and received the Governor's signature. Thus, after approximately 20 years' experience, popular election and recall of public service commissioners was repudiated in Oregon.

*Conclusion*⁸⁰

Popular election and recall of public service commissioners in Oregon has resulted in a rapid "turn-over" of com-

missioners. This was particularly true between 1917-1924 when economic conditions compelled decisions adverse to public opinion and then in those districts where the electorate was most articulate and the orders were especially burdensome. The Commission has displayed an unwillingness to render unpopular decisions and some have been open to the criticism of political expediency. This has been due generally to the attitude assumed by those members whose constituencies were most interested in the order in question. The Commission has usually been a partisan body and when choosing its members the relative competency of the various candidates has seldom been given sufficient consideration. All too often the idea seems to have been that anybody was better than the incumbent. Prior to their election most of the Commissioners have held some other office of political preferment and Portland has always exerted a powerful influence over the Commission. On the whole, the experience of Oregon would seem to indicate (1) that the greater the number of the electorate involved in Commission decisions, the greater the pecuniary sacrifice that it is compelled to make therein; (2) and the more articulate and susceptible of manipulation is public opinion as in urban centers, the less satisfactory is the policy of popular election of public service commissioners; and (3) that the evil consequences of popular election under these conditions are intensified by the use of the recall.

respectively state very clearly the public attitude toward the Commission in recent years.

⁷⁷ S. B. No. 81.

⁷⁷ *Ibid.*, Dec. 4, 1926, p. 21.

⁷⁸ Governor Pierce's special messages to the 33rd Legislature dated January 29, and February 16, 1925,

⁸⁰ Reference to Tables I and II will be helpful in reading the conclusion.

THE PHILADELPHIA BUILDING AND LOAN ASSOCIATION PLAN OF FINANCING BY SECOND MORTGAGES

By W. N. LOUCKS

THIS is the second of two articles on the plan used by Philadelphia building and loan associations in second mortgage financing. The previous installment¹ contained a description of the plan and an analysis of the extent of its use. Two tests were set up: (1) Is the cost of second mortgage money under the Philadelphia plan reasonable; and (2) are the loans made on second mortgage security according to this plan safe? The first question has already been answered in the affirmative. Consideration of the second will form the main substance of this article.

II. *Are Second Mortgage Loans under the Philadelphia Plan Safe?*

At the time the association grants the second mortgage loan the borrower assumes certain obligations. He must pay interest on the loan and installments on the shares of the association's stock which he is purchasing by monthly payments; he must take care of fire insurance premiums, taxes, city water rent, etc. Failure to meet any of these obligations causes the borrower's property to become subject to a foreclosure proceeding.

Such a proceeding involves presentation by the association of proof of default on the part of the borrower. This proof is presented to the proper legal authority, who, after having served notice on the mortgagor that such a proceeding has been instituted and

after giving him a chance to set up counter claims against the association, orders the property to be sold at a sheriff's sale. From the proceeds of this sale the association will, after legal expenses have been paid, receive the amount owed to it by the borrower. If a balance remains, the mortgagor receives it. Of course, it is possible that the highest bid for the property at the public sale will not be sufficient to cover the amount of money owed to the association. In such cases the association has the privilege of bidding for the property itself. Consequently, associations sometimes see fit to purchase the property on which foreclosure is taking place at their instigation, with the expectation of holding it for a sale price which will more completely cover the amount of money the association has in the property. Clearly there is a possibility of loss to the association by either method.

Foreclosure is usually a last resort used by the association to protect itself against a loss. Building and loan associations, as a rule, will use every method in aiding the borrower to meet his obligations as long as he shows a sincere desire to do so. In case of sickness, unavoidable unemployment, or financial reverse the association will usually carry him along without foreclosure for a considerable period of time.

In surveying the experience of Philadelphia associations using the Philadelphia plan an attempt was made to determine with some exactitude just

¹ *Journal of Land & Public Utility Economics* 367-374 (November, 1928).

how many second mortgage foreclosures these associations have to make and what losses are incurred as a result. Although users of the Philadelphia plan have claimed for many years that foreclosures have been very few and losses "negligible," no comprehensive evidence has ever been presented to support this contention. As a result of this survey, it is possible to present here statistical data covering the experience of 195 Philadelphia associations which finance second mortgages under this plan (Table I). This experience covers an

TABLE I. NUMBER OF FORECLOSURES MADE BY 195 PHILADELPHIA BUILDING AND LOAN ASSOCIATIONS WHICH FINANCE SECOND MORTGAGES, 1913-1926.

Number of Associations	Number of Foreclosures
Reporting as individual associations	
115	0
18	1
7	2
9	3
4	4
1	5
0	6
1	7
1	8
0	9
1	10
0	11
0	12
0	13
0	14
1	15
Reporting as groups	
Group of 9	About 7 or 8*
Group of 25	About 6
Group of 3	Not over 15 or 20*
Total 195	154

*This figure used in total.

average period extending over the 14 years prior to 1927.

The aggregate experience of these associations is particularly striking. The total number of foreclosures (154) reported by the 195 associations during the 14 years is an average of something less than one foreclosure per association. According to their reports, these associations made a total of 28,462 second

mortgage loans during this period. Comparison of the total of 154 foreclosures with this figure shows that one out of every 185, or slightly more than $\frac{1}{2}$ of 1% of all second mortgage loans financed in the 14 years, had to be foreclosed.

A question may arise as to whether these reports include the foreclosures of those associations which had the most unfavorable experience. Although some associations probably refrained from disclosing their foreclosure records because of fear that such information would injure them, this was not believed to be the case to any considerable degree. Since, in making this survey, particular care was taken to get a representative cross-section of actual conditions, it can be assumed that the facts stated above reflect the average foreclosure experience under the Philadelphia plan.

Although the number of foreclosures made is significant it is far more important to know to what extent these foreclosures caused losses to the associations which made them. How a foreclosure may give rise to a loss has already been noted, but the possible gain from foreclosure is no less important. If the association buys the property on which its mortgage is being foreclosed and later sells for more than its total equity in the property, a profit has been realized.

Of the 195 associations whose experience was analyzed, only 80 made one or more foreclosures on second mortgages over this average period of 14 years (Table I). Of these 80 associations, 54 reported that the foreclosures had occasioned them no losses, one group of 9 associations reported that as a group they had lost "practically nothing," and 5 associations said that property was still being held as the result of foreclosure proceedings, so that it could

not be ascertained whether or not a loss would result when the matter was finally settled. Only 10 associations reported that they had been forced to stand losses (Table II).

TABLE II. DISTRIBUTION OF LOSSES SUSTAINED BY 10 PHILADELPHIA BUILDING AND LOAN ASSOCIATIONS AS A RESULT OF FORECLOSURE

Number of Associations	Total Amount of Loss per Association
1	\$140
2	500
1	546
1	650
2	1,000
1	1,500
1	2,500
1	5,000
Total 10	\$13,336

Two other associations reported profits on foreclosures. One of these gained \$200 as the net result of 10 foreclosures and the necessitated purchase of one property on which the first mortgage was foreclosed. The other association reported that all of its three foreclosures had been made profitable by "jumping quick," but did not state how much profit had been made.

However, there is still another way in which an association may incur a loss. Under the Philadelphia plan the outstanding first mortgage, prior to the second held by the association, might be foreclosed should the borrower fail to meet any of the obligations connected with it. In that event the property will be offered for sale by the sheriff and, if the highest bid is not sufficient to cover the second mortgage as well as the prior lien, the association will be forced to buy the property to protect its interest in it. Through being forced to buy a property in this manner and not being able to sell it at a price covering the amount paid for the property at the public sale, plus its claim, the association may lose.

Only 11 associations reported that they had been forced to buy property under these circumstances. Losses arising out of these transactions totaled \$1,700. Adding this amount to that lost as a direct result of second mortgage foreclosures, the aggregate loss of approximately 200 associations surveyed amounted to \$15,036 over a period of about 14 years. This was slightly less than 1/100 of 1% of the present aggregate assets of these associations.

A qualification in the interest of accuracy can appropriately be made at this point. Although foreclosures and losses arising out of the use of the Philadelphia plan have been very few and insignificant during the period covered by this survey, it is a matter of common knowledge in Philadelphia that they have been increasing in number and seriousness since early in 1926. During the past two years the Philadelphia real estate market has experienced a rather serious slump, resulting chiefly from over-construction of housing facilities. This has, of course, reacted unfavorably upon real estate mortgage loans. Some of the Philadelphia associations which have been operating with too little conservatism are struggling to keep their heads above water. It is too early to determine what the ultimate effect of this market condition will be on the Philadelphia plan, but the conservatively operated associations will in all probability come through it without serious consequence.

Most readers will readily agree that foreclosures and losses no more numerous and no larger than those here found may be spoken of as negligible. However, in order to gain a more definite idea as to the satisfactory nature of this experience, it may be compared with the findings of a study made about 1924 of foreclosures on building and loan first

mortgages in the United States.² That study showed that about 65/100 of 1% of these first mortgages were foreclosed over the United States as a whole. Compared with this figure, the 1/2 of 1% of the second mortgages foreclosed in Philadelphia does not seem unreasonably high. Several other indications that this plan of financing second mortgages has been used successfully in Philadelphia deserve mention, although these considerations are minor to those just discussed.

In the first place, very few business failures have occurred among building and loan associations in Philadelphia. Unfortunately an outbreak of dishonesty and fraud on the part of building and loan officials in Philadelphia during the last two or three years has taken its toll of association failures. However, these are in no way connected with the Philadelphia plan in its business aspects and so may be dismissed from further consideration. An official of the State Banking Department stated about a year ago that, if these fraudulent cases are not included, not over 10 associations in Philadelphia had failed in the last 10 years. Recalling that there are about 3,400 associations in the city, this would seem to indicate that the use of the Philadelphia plan has not impaired the security of the city's building and loan business as a whole.

Does the Philadelphia plan actually increase home ownership? An affirmative answer would be expected because the plan undoubtedly makes the financing of a home purchase much easier. The census bureau statistics for 1920 show that Philadelphia with 39.5% of the homes in the city owned by their occupants stands first in this respect

among the six largest cities of the United States.³ The Philadelphia plan has unquestionably been one of the major causes of this situation.

Borrowers on the whole seem satisfied with financing done under this plan. They, of course, resent the occasional mistreatment they receive at the hands of some preying broker who "places" their loan with some association, but these are the exceptional cases. There is very little litigation between associations and borrowers.

All of these considerations lead to the conclusion that the Philadelphia plan as it has been used in Philadelphia over a period of about 50 years has been satisfactory to the borrower because of reasonable costs of financing; to the building and loan associations because risk as reflected in foreclosures and losses is small; and to the community because this financing plan has been instrumental in building up an efficient and sound building and loan business which is chiefly responsible for making Philadelphia a leader in home ownership among the largest metropolitan areas of the United States.

Reasons for the Successful Use of the Philadelphia Plan

An attempt has been made to set down in the succeeding paragraphs the chief reasons for the success which has attended the use of this second mortgage financing plan. The first of these has to do with the nature of the investment field in which the Philadelphia plan operates, whereas the others involve particular phases of the plan as it is used there.

² New York, 12.7%; Chicago, 27.0%; Philadelphia, 39.5%; Detroit, 38.3%; Cleveland, 35.1%; St. Louis, 23.8% (Department of Commerce, Bureau of the Census, *Census Monographs*, No. 2, Mortgages on Homes, p. 141).

³ Clark and Chase, "Elements of the Modern Building and Loan Associations" (New York: Macmillan, 1925) p. 513.

Safety of Loans on Homes. The foundation stone of the Philadelphia plan is the general safety of real estate investments. Of course, it is possible to lose money by speculation or even investment in real estate; but, if made with reasonable care, real estate investments are generally regarded as among the safest of all possible investments. Insurance companies have discovered this fact in recent years. To a still greater degree is this true of loans on the security of a home in which the borrower himself resides. These generally recognized facts are largely responsible not only for the evident success of the Philadelphia plan, but also of the building and loan business throughout the country.

Careful Appraisals. A first mortgage loan for 50% or 60% of the value of a property will probably not suffer if an error of 25% to 30% or even more is made in the appraisal, but a second mortgage loan which goes as high as 80% necessitates a very careful estimate of the real market value. Under the Philadelphia plan the property offered as security is subjected to the careful scrutiny of a committee of directors of the lending association, usually three in number. This committee reports to the board of directors the largest amount it considers safe to lend on the property. The directors in passing on the application for the loan rely principally but not solely upon this committee report.

Appraisal of the Moral Risk. In determining the "moral risk," which is and should be just as carefully considered as the property risk, the directors attempt to appraise such factors as the character of the borrower, the steadiness of his income, his habits as to saving and thrifty living, his reputation as to prompt payment of debts. The rating given the applicant in these matters plays an im-

portant part in determining whether a loan will be granted and, if so, what percentage of the appraised value of the property will be lent.

Association-Realtor Relationship. The Philadelphia building and loan associations are probably, as a whole, more closely linked up with local realtors than are any other associations in the United States. Although some disadvantages grow out of this relationship, nevertheless certain obvious advantages result from having a specialist in the field of real estate values close at hand when certain decisions are to be made. It is generally believed in Philadelphia that these advantages materially outweigh the disadvantages.

Low Operating Expenses. The Philadelphia associations are operated at a minimum of expense. The only salaries paid are those of the secretaries and treasurers who usually receive 15 cents per annum per share of stock outstanding, a very small sum when compared with the amount of work done by these officers. Solicitors' fees and appraisal fees are not paid out of the associations' funds. Very few associations maintain their own offices. A realtor's office or the home of the secretary or a director often serves as the meeting place of the directors as well as the place where business is transacted between meetings. As a result of extremely low expenses the net earnings of the Philadelphia associations have been very high, about 8½% to 9%. As a result of these high earnings a plentiful supply of savings continually flows to the associations for lending on second mortgage security.

Philadelphia Savers Not Afraid of Second Mortgages. Inquiries directed to prominent building and loan men in Philadelphia elicited very positive replies on this matter. Philadelphians who use the associations as depositories for

savings are primarily interested in the men who, as directors and officers, are supervising the affairs of the association, rather than in the kind of security accepted for loans. If these men hold the confidence of the community, the saver will ordinarily not inquire whether the association's loans are on first or second mortgages. Even the secretary of the largest first mortgage association in Philadelphia, which confines its activities to the first mortgage field because it wants to have not only a safe, but the safest possible investment for its funds, expressed the opinion that a change in this policy permitting them to make second mortgage loans would not cause non-borrowing stockholders to leave the association. The faith of Philadelphia savers in second mortgages aids the associations in attracting funds from non-borrowing savers to be lent on second mortgage security.

The Amortization Principle. The relation of the amortization principle to the successful use of the Philadelphia plan merits a more complete discussion than is possible here. It will be recalled that under the Philadelphia plan the first mortgage stands without reduction while the second mortgage undergoes a continuous reduction or amortization from the very time it is granted, through the installment purchase of shares of the association's stock by the borrower. For illustration, take a property which is being purchased for \$5,000 and is so appraised by the association's committee. A loan of \$3,000 has been extended to the purchaser on first mortgage security by a bank, a loan of \$1,000 on second mortgage security by an association, and a down payment of \$1,000 made by the purchaser. Using a conservative estimate of the rapidity with which the association's second mortgage loan is amortized under the Philadelphia

plan, the net second mortgage loan held by the association, which is its equity in the property, decreases as follows:

After 1 year.....	\$938.34
After 2 years.....	872.92
After 3 years.....	803.52
After 4 years.....	729.90
After 5 years.....	651.78
After 6 years.....	568.92
After 7 years.....	481.00
After 8 years.....	387.73
After 9 years.....	288.79
After 10 years.....	183.81
After 11 years.....	72.45
After 11 $\frac{3}{4}$ years.....	0.00

The first equity consumed by any drop in value is that of the purchaser. Consequently, until the property has fallen in value by more than \$1,000 the association will lose nothing. Thus, if foreclosure were necessary during the first year the loan is outstanding, the association would not lose unless, between the time the loan was made and the time foreclosure occurred, there had been a decline of more than 20% of the appraised value at the time the loan was granted. It is possible, therefore, to tabulate the percentages by which the value of the property would have to fall over various periods of time before the association would be forced to take a loss (Table III).

TABLE III. PERCENTAGE DECLINES OF VALUE POSSIBLE BEFORE LOSSES WOULD ACCRUE TO ASSOCIATIONS*

If Foreclosure Were to Take Place	Percentage
Within 1 year.....	20.07%
Within 2 years.....	21.57%
Within 3 years.....	22.57%
Within 4 years.....	23.97%
Within 5 years.....	25.47%
Within 6 years.....	27.07%
Within 7 years.....	29.67%
Within 8 years.....	30.47%
Within 9 years.....	32.27%
Within 10 years.....	34.27%
Within 11 years.....	36.37%
Within 11 $\frac{3}{4}$ years.....	38.67%
After 11 $\frac{3}{4}$ years.....	40.07%

* In these calculations the \$1000 original equity of the owner was added to his yearly increments of equity resulting from purchase month by month of the association's shares of stock and this sum presented as a percentage of the market value of the property at the time the loan was granted.

A different situation would obtain if the second mortgage loan were a straight loan, i. e., one which is not being continually amortized by monthly installments. In such a case, the risk would be considerably greater because a drop in value of more than 20% at any time during the life of the loan would enroach upon the equity of the association and force it to take a loss or buy and hold the property in the event of foreclosure on either the first or the second mortgage. However, under the Philadelphia plan the equity of the association is being progressively reduced and that of the purchaser increased, thus permitting year after year, a greater and greater possible decline in the value of the property without placing the association's equity in jeopardy in the event of foreclosure. It must be remembered that the data in Table III apply only in cases where foreclosure is necessary on either the first or the second mortgage. If the market value of a property falls below its appraised value and yet the purchaser keeps up his monthly payments to the association, as would often be the case even though a considerable fall in value may have occurred, the association will lose nothing. Unquestionably, the inclusion of the amortization principle in the Philadelphia plan has contributed to its success in past years.

Stability of Real Estate Values. Some of the men interviewed during the course of this investigation suggested that the stability of Philadelphia real estate values contributes to the successful use of this plan in Philadelphia. If it is true that real estate values are more stable in this city than elsewhere, this circumstance should be listed as one of the causes of the success of the plan. Stability of values would clearly make it easier for the association to predict

future values and consequently would lessen losses resulting from incorrect predictions. A study of the stability of the Philadelphia real estate market would be very valuable, but it was impossible to extend this survey to include that point. A reasonable assumption, however, is that Philadelphia realty values are comparatively stable, because Philadelphia is an old city, has had a slow and steady growth, and now has a well-diversified industrial and commercial life.

Title Insurance and Sheriff's Sale Certificates. The use of these two devices frees the lending agency from two very important risks. The extent to which they are used by the Philadelphia second mortgage associations proves that they are considered invaluable parts of the plan.

Could the Philadelphia Plan Be Used Elsewhere?

The possibility of using this second mortgage financing plan outside Philadelphia is a moot question. That some sound, efficient, and cheap plan of financing second mortgages is needed elsewhere cannot be doubted. The writer is not prepared to say that the Philadelphia plan is the answer to this need. State building and loan officials outside Pennsylvania are almost invariably opposed to second mortgage building and loan financing, but whether or not their opposition is well-founded is outside the scope of this study. However, some points which should be considered in any discussion of the applicability of the Philadelphia plan elsewhere may be suggested.

The basic reason for the success of the Philadelphia plan, safety of loans on the security of homes, would no doubt be found to prevail in most places outside Philadelphia as well as in that city.

Careful appraisals of the property and the "moral risk" can be made elsewhere just as easily as in Philadelphia. If building and loan associations do not at the present time use the utmost care in making appraisals, the habit could be developed. If realtor participation in the associations of Philadelphia has enhanced the success accompanying the plan's operation, such cooperation could be obtained readily elsewhere by showing realtors how they will benefit through setting up more efficient second mortgage financing practices. Building and loan operating expenses elsewhere are higher than in Philadelphia, chiefly because of the maintenance of more elaborate offices and clerical staffs. Possibly borrowers and savers would not object seriously to the slightly greater inconvenience and the slightly higher rate of earnings which might result from the instigation of an economy program on the part of directors. Building and loan associations almost universally use the amortization principle, so there would be no need for the adaptation of the association's practices in this respect. Title insurance is gradually spreading over the country and, if it is not available, a reliable search of title will serve practically the same purpose. It would be a simple matter for trust companies or banks to issue sheriff's sale certificates if the need for them became apparent and the remuneration adequate.

In short, all but two of the conditions to which the success of the Philadelphia plan has been attributed largely already exist or could, with comparative ease, be developed elsewhere.

Is the prejudice against second mortgages as investments so widespread and so deep-seated that savers would immediately withdraw funds from the associations if they were to engage in

second mortgage financing under the Philadelphia plan? That there is a strong prejudice is certain. If the Philadelphia plan is to be used outside Philadelphia it will be necessary to build up confidence in second mortgage security for loans on homes. Much of the present fear of second mortgage loans no doubt arises from the disreputable nature of many of the second mortgage financing agencies now operating. Just how long it would take to overcome this obstacle it is impossible to say but certainly if one association in a community were to extend loans under the Philadelphia plan in a conservative manner, under the supervision of well-known business men or realtors of unquestioned integrity, the experiment, if successful, would do much to increase the respect of savers for such loans.

A second question, and one of still greater importance, is: Are real estate values sufficiently stable to warrant the use of the Philadelphia plan? Instability of real estate values would undeniably work counter to the successful operation of the plan. This, then, is a question which must be answered for the local region before the applicability of the Philadelphia plan to any city can be determined. How stable must values be before this plan can be used? Table III, which shows the percentage decline of value which might occur before losses would result to the associations, affords a clue to the answer to this question.

In concluding, the reader is reminded that the Philadelphia plan has been used successfully in that city during a period of 50 years or more, its history going back much farther than the beginning of the period covered by our survey. This long history, however, is not a guarantee that it would operate satisfactorily elsewhere. Before such a conclusion is reached the local territory

must be analyzed, particularly to ascertain the stability of real estate values. One statement may be made without any fear of contradiction: The experience in Philadelphia is ample proof of the desirability of investigating the possible use of the Philadelphia plan elsewhere. Should such an investigation

disclose conditions unfavorable to the plan's successful use, obviously other solutions for the second mortgage financing problem must be sought, but refusal to investigate open-mindedly the possibilities of the Philadelphia plan can hardly be justified.

HISTORY AND RESULTS OF COMPETITIVE BIDDING FOR RAILROAD EQUIPMENT TRUST CERTIFICATES

By BARCLAY J. SICKLER

AMONG other provisions in the Transportation Act of 1920, the Interstate Commerce Commission was given authority over the issuance and sale of railroad securities. Since that Act all securities which railroads have proposed to issue have been first passed upon by the Interstate Commerce Commission as to the purpose of their issue and the price at which they could be sold. Until recently this control over offering price has been exercised only through setting a minimum price below which the issue could not be sold. For the majority of securities this method is still the only one by which control over selling price is exercised. In the case of equipment trust certificates, however, the Commission since June 23, 1926, has required, with a few exceptions, that sales be made by calling for competitive bids from bankers desiring to handle the issue.

History of Competitive Bidding

Discussion of the sale of railroad securities through competitive bidding among bankers was first started by the Interstate Commerce Commission in September, 1920.¹ In a case concerning a New York Central bond issue the advisability of having competitive bidding was discussed and it was decided that prevailing conditions were unfavorable. Conditions mentioned as making competitive bidding undesirable were the

numbers of higher yield and tax-free securities competing for investment funds, the fact that bankers obtained higher commissions from other securities than from railroad securities, and the comprehensive and expensive machinery of distribution necessary. The Commission expressed its attitude towards the advantages of competitive bidding, however, in the following words: "We have thought it necessary to set forth in detail the circumstances and cost attending the marketing of the proposed issue because the assurance of reasonable terms afforded by competitive bids was not present."

The subject of competitive bidding was not again brought up by the Interstate Commerce Commission until October, 1922, when a hearing was held in Washington to discuss this matter.² At this hearing no appearance was made in favor of competitive bidding, but the following arguments were made in favor of the existing relationship between the railroads and the bankers whereby one investment house as a matter of course handles all of a railroad's securities.

1. Such a relationship insures expert advice as to what securities to issue and when they should be issued. Advice of this nature must be based upon an intimate knowledge of the railroad's financial structure and needs, as well as a knowledge of market conditions.

2. The selling to investors of all securities which have been issued is insured by such a relationship. The credit

¹ 65 I. C. C. 172, New York Central Railroad Collateral Trust Bonds and Refunding and Improvement Bonds.

² 67 *Railway Age* 846-849; 86 I. C. C. 529.

of a railroad would probably suffer greatly if it failed to sell an issue after it had been advertised.

3. To guard against speculative attacks it is important that an announcement of the underwriting of the securities be simultaneous with the announcement of the proposed issue.

4. Competitive bidding takes considerable time, and fluctuations in market conditions may make timeliness a very important factor.

5. In times of stress it is desirable to have the advice and financial support of a strong banking house which is vitally interested in the welfare of the railroad.

Between these two discussions of competitive bidding at least one issue of equipment trust certificates was voluntarily sold by competitive bids.³ Following the 1922 hearing, in the 18 months before further discussion of this subject by the Commission, there are records of two other cases where equipment trust certificates were voluntarily sold in this fashion.⁴

The question of competitive bidding was again brought up by the Commission in March, 1924, in connection with the bonds of the Chicago Union Station, and at the time of the original hearing competitive bidding for these bonds was ordered.⁵ Later, however, this order was revoked and the bonds were sold to Kuhn, Loeb and Company.⁶

In this case the importance of the arguments made against competitive bidding at the 1922 hearing was admitted in regard to railroad securities in general, but it was contended that they have little weight in the case of small, high-grade, standardized issues, such as equipment trust certificates or terminal

bonds, particularly those of railroads of assured earning power and favorable financial position. In a case a few days later,⁷ although competitive bidding was not ordered, these arguments were reiterated, and it was also said that there is no reason why railroads should not have the same arrangements with bankers as do other industries whereby some issues are sold through the bankers, and other securities are sold in different ways, often direct to investors. In this way the industry keeps its banking connections and still sells some of its securities competitively. It was also said that such bidding would tend to correct the current impression that certain railroads are involved with certain financial houses.

The subject was again dropped until May, 1925, when in cases concerning New York Central and Northern Pacific equipment trusts⁸ Commissioner Eastman argued strongly in favor of competitive bidding. The opinion of the majority allowed the issue of these certificates in the ordinary way, but Mr. Eastman dissented on the ground that competitive bids had not been called for. In these cases Mr. Eastman re-emphasized that the arguments against competitive bidding do not hold in the case of equipment trust certificates because of their standard, high-grade character and the fact that the credit of the railroad is only slightly involved. He commented on the monopoly of railroad issues possessed by J. P. Morgan and Company and Kuhn, Loeb and Company. Without intending to be complete, he listed 13 important roads⁹

⁷ 86 I. C. C. 612.

⁸ 99 I. C. C. 121; 99 I. C. C. 164.

⁹ Atlantic Coast Line; Chicago, Burlington, and Quincy; Chesapeake and Ohio; Erie; Florida East Coast; Great Northern; Louisville and Nashville; Nashville, Chattanooga and St. Louis; New York Central Lines, including the Michigan Central and the Big Four; Northern Pacific; and the Southern Railway.

³ 71 I. C. C. 749.

⁴ 86 I. C. C. 61; 86 I. C. C. 553.

⁵ 86 I. C. C. 529.

⁶ 94 I. C. C. 177.

as dealing exclusively with J. P. Morgan and Company, and 13 other large railroads¹⁰ as dealing only with Kuhn, Loeb and Company.

In a later case in 1925¹¹ Mr. Eastman, although he concurred with the majority in permitting this issue, pointed out that the securing of competitive bids on equipment was highly commended, and wondered why the same principle did not apply in connection with the services of bankers.

Between May, 1925, and the ordering of competitive bidding generally in June, 1926, Mr. Eastman seemingly made it a point to dissent from the majority opinion allowing the issue in every case where competitive bidding was not practiced when in his opinion it should have been. In 18 cases,¹² two of which concerned terminal bonds, he stated that his dissent was for the same reasons as in the New York Central and Northern Pacific cases mentioned, and in 8 other cases¹³ he merely dissented without stating his reasons.

In most of these cases Commissioner Eastman made no further argument, but in the case of the Pennsylvania Railroad Equipment Trust in May, 1926,¹⁴ he again argued strongly for competitive bidding. Then in June, 1926, in the Western Maryland Equipment Trust,¹⁵ where competitive bidding was voluntarily practiced, Mr. Eastman's campaign culminated in victory when the Commission ordered that thereafter all equip-

ment trust certificates should be sold in this manner. In this case the effect of such bidding in widening the investment market and securing cheaper capital was stressed. It was stated specifically that this method of selling was not intended to apply to railroad securities in general, the commissioners being fully mindful of the reasons for preserving the present relation of banker and railroad in respect to other securities. This statement has since been re-affirmed in a case where a stockholder intervened requesting that a bond issue be disallowed because the bonds had not been sold through competitive bids.¹⁶

During this period when the Commission was divided as to whether competitive bidding should be required, in addition to the Western Maryland case at which the general order was issued, there is record of one other issue of equipment trust certificates being voluntarily sold under competitive bids,¹⁷ and at least one bond issue was also voluntarily sold by this method.¹⁸

Since the Western Maryland case almost all equipment trust certificates have been sold under competitive bids, the exceptions generally being in cases where the certificates were exchanged directly for the equipment,¹⁹ or where the issue was so small as to render bidding uneconomical.²⁰ In one case in the latter part of 1928²¹ the railroad was permitted to reject all bids as too low and sell the bonds privately at a higher price. In several cases where the railroad requested that it be allowed to sell the securities in some other fashion,

¹⁰ Central of Georgia; Chicago and Eastern Illinois; Chicago, Milwaukee and St. Paul; Illinois Central; International-Great Northern; Long Island; Missouri Pacific; New Orleans, Texas, and Mexico; Pennsylvania; Southern Pacific; Texas and Pacific; Union Pacific; and the Wabash.

¹¹ 99 I. C. C. 682.

¹² 99 I. C. C. 176, 549; 105 I. C. C. 133, 293, 361, 365, 415, 493, 517, 581, 695, 713, 725, 785; 111 I. C. C. 73, 237, 241, 409.

¹³ 99 I. C. C. 227, 637; 105 I. C. C. 196, 215, 343, 753; 111 I. C. C. 30, 255.

¹⁴ 111 I. C. C. 241.

¹⁵ 111 I. C. C. 434.

¹⁶ 124 I. C. C. 315.

¹⁷ 99 I. C. C. 663.

¹⁸ 111 I. C. C. 406.

¹⁹ 111 I. C. C. 130, 795; 124 I. C. C. 603; 138 I. C. C., Docket 6723.

²⁰ 111 I. C. C. 418, 667; 138 I. C. C., Docket 6696.

²¹ 145 I. C. C. Docket 7062.

the Commission refused and compelled bids to be asked.²²

As a means of saving time and of making certain that an issue will be sold, the railroads, almost with the first case, called for bids before applying to the Commission for permission to issue the certificates. The securities were then sold to the highest bidder subject to the Commission's approval. There were on the average 8 bidders for each issue of these certificates in 32 cases examined. In many cases several bankers grouped together to make their bids. It is interesting to note that the two great banking houses which formerly handled the great majority of equipment trust certificates, Kuhn, Loeb and Company and J. P. Morgan and Company, have not participated in this bidding.

Since the early summer of 1928 the disorganized security market has caused some difficulty in the sale of equipment trust certificates through competitive bidding. In four cases reported between June, 1928, and October, 1928, an average of only two bids was received. In one of these cases, as was mentioned above, the railroad was allowed to reject all three bids received, and sell the certificates privately at a higher price. In the next case,²³ where only one bid was received, the railroad desired to do the same thing and had secured from Kuhn, Loeb and Company a private offer considerably higher than the rejected bid. The Interstate Commerce Commission refused to approve this, however, and ordered the railroad again to call for bids. The Commission in giving its opinion reviewed the results of competitive bidding and said that, although recent developments in the financial world had narrowed the markets for such securities, discontinuance of

competitive bidding was not warranted and the Commission would do nothing to discredit it. Since testing the market by calling for bids and then rejecting them and placing the certificates privately would discourage bidding in the future, the Commission refused to permit this to be done in this case.

When bids were again asked on this issue about six were received, the highest being very slightly less than the offer by Kuhn, Loeb and Company. For one other issue reported since then five bids were received. The fact that considerable numbers of bids are again being received for certificates offered indicates that the crisis in this period of difficulty has been passed.

Results of Competitive Bidding

As an indication of the effectiveness of the competition called forth by the practice of competitive bidding, the comparison shown in Table I between the cost of financing for equipment trust certificates sold through bidding, and for bonds, which are sold in the ordinary way, should be significant. The source of the data shown in this table is the reports issued semi-annually by the Interstate Commerce Commission showing the price to the company of all securities and the offering price where this is available. Only those issues where both prices were given could be used.

It can be seen from this table that the banker's commission on equipment trust certificates per \$100 of offering price shows a decided downward trend since the inauguration of competitive bidding. This commission for the first six months of 1928 was considerably less than half that for the first six months of 1926. In the case of bonds a general downward tendency continued during

²² 111 I. C. C. 671; 117 I. C. C. 11, 15; 124 I. C. C. 679; 145 I. C. C. Docket 7039.

²³ 145 I. C. C. Docket 7039.

RESULTS OF COMPETITIVE BIDDING

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TABLE I. COMPARISON OF BANKERS' COMMISSIONS ON RAILROAD EQUIPMENT TRUST CERTIFICATES BEFORE AND AFTER COMPETITIVE BIDDING.

	PERIOD	BANKER'S COMMISSION PER \$100 OF OFFERING PRICE		BANKERS' COMMISSION PER DOLLAR ISSUED PER YEAR OF SECURITY LIFE*	
		Bonds	Equipment Trust Certificates	Bonds	Equipment Trust Certificates
No Competitive Bidding.....	1924—1st 6 months	\$3.52	\$1.84	.27c	.33c
	2nd 6 months	2.99	1.91	.20	.33
	1925—1st 6 months	3.05	1.77	.20	.33
	2nd 6 months	3.03	1.73	.26	.28
	1926—1st 6 months	2.81	1.56	.17	.25
Competitive Bidding for Equip- ment Trust Certificates.....	2nd 6 months	2.60	1.24	.20	.21
	1927—1st 6 months	2.80	.73	.17	.12
	2nd 6 months	2.51	.63	.16	.09
	1928—1st 6 months	2.38	.61	.13	.10

* This is the difference between the yields at the price to the company and the yields at offering price.

this later period but the decline is much less marked than in the case of equipment obligations. The average commission charged in the first six months of 1928 is about 85% of that for the first six months of 1926.

A similar relation exists when this commission is reduced to the per-dollar-per-year basis. It can also be observed that only in the last six-months' period recorded has this decline in the commission per-dollar-per-year on bonds been marked. For the year 1927 the banker's commission expressed in this manner is practically the same as for the first six months of 1926.

Whether these differences in the trend of the cost of financing by the two types of securities are the result of competitive bidding for equipment trust certificates, or to other factors is, of course, difficult to determine. Even if this is attributed to competitive bidding, it is too early to say whether the result is permanent or one arising from the good demand for securities which has prevailed recently, both on the part of investors and on the part of bankers for securities to sell.

Supporting the possibility that this is a temporary result, the statement was

made at the 1926 convention of the Investment Bankers Association of America that the exceptionally high prices received for these certificates under competitive bidding has been the result of the unusual nature of the demand for securities.²⁴ Doubt was implied whether in bad times the same results will be obtained from this method of selling. It was said further that "securities of companies which are brought out at right prices rather than at too high prices are in the long run more popular, and that the continuous borrower who sells his securities to bankers of his own choice on a reasonable basis receives more for them in the end."

It cannot be doubted that in times when bankers for any reason are not very eager to obtain securities for their organizations to sell, the commission on these securities will rise. There is some question, however, whether the amount of this commission will even then be greater than under the older method of selling. Probably in times of depressed security markets the willingness of regular bankers to buy securities from the

²⁴ Investment Bankers Association of America, *Proceedings*, 14th Annual Convention, Report of Railroad Securities Committee, p. 144.

railroads and keep them in their vaults until conditions improve—a thing which mere bidders will not do—will result in better prices to the railroads. It may well be, however, that the lower commissions charged during good markets under competitive bidding will more than offset this advantage of the older system. It seems improbable that this service of the regular bankers is philanthropic. For such standardized and well-known securities as equipment trust certificates there would seem to be no reason for prolonged disorganization of markets, or for more than temporary difficulty in finding a banker willing to market them for a reasonable profit above the actual cost of the service.

The conditions which existed during the late summer and early fall of 1928, when the bond markets were so uncertain that very few bankers were willing to bid for equipment trust certificates, do seem to indicate, however, that some method of temporary financing must be developed, if the system of competitive bidding is to be permanently successful. The necessity of dumping long-time securities on disorganized markets will saddle entirely unnecessary interest burdens on the railroads. The stronger roads at any

rate should be able to put their long-term securities in their own vaults at these times and arrange for temporary financing.

Referring to the quotation from the proceedings of the Investment Bankers Association of America, the statement that securities brought out at right prices rather than at too high prices are in the long run more popular is susceptible to two interpretations. This may mean that bankers have been forced to pay "too high" prices to permit their usual commissions, thus decreasing the popularity of such securities with them. Or this statement may be interpreted to mean that the price paid by the banker is so high as to cause him to sell the securities to investors at too high prices.

As to the first interpretation, it must be admitted that "right prices" would undoubtedly result in greater popularity for these securities among bankers. This popularity might be purchased at too high a price, of course.

The interpretation that these securities are being offered to investors at too high prices is worthy of more extended consideration. It may be assumed, other things being equal, that, if offering prices are too high, market prices a short time later will tend to be less. An attempt has

TABLE II. COMPARISON OF YIELD AT OFFERING PRICE AND YIELD SIX MONTHS LATER OF RAILROAD EQUIPMENT TRUST CERTIFICATES.

	Period	Number of Issues Used	Simple Average Yield at Offering Price	Simple Average Yield Six Months Later*	Yield Six Months Later Adjusted for Changes in Interest Rate
No Competitive Bidding.....	1925—1st 6 months	9	4.68%	4.89%	4.82%
	1925—2nd 6 months	4	4.87	4.89	5.05
	1926—1st 6 months	5	4.73	4.69	4.64
Competitive Bidding.....	1926—2nd 6 months	3	4.66	4.65	4.79
	1927—1st 6 months	6	4.60	4.57	4.76
	1927—2nd 6 months	9	4.43	4.33	4.54
	1928—1st 6 months	6	4.24	4.88	4.07

*Quotations from Bank and Quotation Record. Midpoint between bid and ask.

therefore been made to determine the truth or falsity of this interpretation of the quoted statement by comparing the relation of the yield at offering price with the yield six months later for equipment trust certificates sold by competitive bids and those sold in the ordinary way. This analysis includes only those issues for which offering price was available and for which quotations six months later could be found. The results of this study are shown in Table II.

This table shows that in two six-months periods prior to competitive bidding and in one since then the average yield six months later was greater than the yield at offering price. In other words, the average price had declined. In the other periods the yield had decreased and the average price thus increased. However, the movements of interest rates in general in the six-months intervals have not been taken into account. Obviously, if interest rates have increased, an increase in the yields of these securities six months later is to be expected. Conversely, if interest rates decline, lower yields than at offering will probably occur six months later. The last column of Table II shows the yields six months later cor-

rected for the change in interest rates as indicated by the yields at offering price of all equipment obligations available, shown in Table III. The column of Table III headed "Change in Interest Rate in Period" shows the amount and direction of change from the previous six-months period. The figures in the last column of Table II have been corrected by these amounts,²⁵ and are thus directly comparable to the yields at offering price.

By comparing these two it can be seen that *relative to the interest rate* yields six months after offering were greater than when the securities were sold, and prices therefore less, in all the periods excepting one before competitive bidding and one since.²⁶ This supports the contention that offering prices have been too high, but this condition seems to be just as true of periods before competitive bidding as it has been since. The average increase in yield relative to the interest rate in the six months following the sale of the securities was .08% before competitive bidding and .05% since.

The evidence of these data is certainly far from conclusive, but it seems to indicate that, considering the course of interest rates, the practice of competitive bidding has not caused the margin of

TABLE III. WEIGHTED AVERAGE YIELD AT OFFERING PRICE OF ALL RAILROAD EQUIPMENT TRUST CERTIFICATES FOR WHICH OFFERING PRICE IS AVAILABLE.*

Period	Number of Issues	Weighted Average Yield at Offering Price	Change in Interest Rate in Period
1925—1st 6 months.....	17	4.78%	.....
2nd 6 months.....	7	4.85	+ .07
1926—1st 6 months.....	12	4.69	— .16
2nd 6 months.....	9	4.74	+ .05
1927—1st 6 months.....	7	4.60	— .14
2nd 6 months.....	11	4.41	— .19
1928—1st 6 months.....	8	4.20	— .21
2nd 6 months.....	2	5.01†	+ .81

* As reported in I. C. C. semi-annual reports of railroad financing.

† Quotation for 1 issue in last half of 1928 from *Commercial and Financial Chronicle*, Nov. 10, 1928, and for the other from *he bankers, Halsey, Stuart & Co.*

²⁵ For example, the yield six months later of the securities offered in the first six months of 1925 is 4.89%, but interest rates as shown in Table III have increased .07%. Hence, 4.89% was decreased by this amount to 4.82% to make it comparable to the yield at offering price (4.68%). In like manner, the next figure of 4.89% for the yield six months later of securities sold in the last half of 1925, interest rates having decreased .16%, was increased by this amount to 5.05%. Each figure for the yield six months after offering was treated similarly.

²⁶ The interest rate shown for the last six months of 1928 and used to determine the change in rates by which the quotations for securities offered in the first half of 1928 were corrected is obtained from only two issues and may be inaccurate. For this reason the results for the last period shown should not be taken as conclusive.

offering prices above market prices to be greater than was thought justified before competitive bidding.

It may be said in conclusion that the results of competitive bidding for equipment trust certificates are far from apparent at the present time. It is true that the cost of financing appears

to have been reduced, but it may be that evils will arise in the form of loss of banker and investor support for such issues which will more than offset this cheaper money cost. Certainly the developments of the future in respect to competitive bidding are likely to prove interesting.

PROBLEMS OF RURAL ELECTRIC SERVICE: RURAL RATES AND THE FINANCING OF RURAL LINE EXTENSIONS*

By HANINA ZINDER

A CONSIDERABLE diversity of opinion exists among public utility managers both as to the rates to be charged and the policy of financing the necessary line extension for rural electric service. It is generally appreciated, however, that the characteristics of rural service are such as to make special consideration necessary. These characteristics are chiefly (1) the large investment required per customer in proportion to the probable revenue available, and (2) the uncertainty of future development.

On the other hand, the development of rural service for the present is dependent upon the policies of the company supplying the service. The importance of rate-schedules in the phenomenal growth of the electric light and power industry certainly proves that a class of business can be built up or lost depending on the form of rate used. The financing of the rural line extension, however, brings in an additional factor which directly involves the rate to be charged and hence complicates the problem. Actually the rural rate and the policy of financing the extension are inseparable, but it is possible to treat them individually in an analysis of the factors involved.

Rural Rates

The logical starting point in searching for a basis of charging for rural service is

* Editorial Note: This is the second and last article on the "Problems of Rural Electric Service" (see 4 *Journal of Land & Public Utility Economics* 337-346

the "cost of service." But the costs incurred by the company are to a great extent overhead expenses and fixed costs in connection with serving all customers. Arbitrary cost allocations are for the most part unsatisfactory since they fail to take into account the economic requirements of the particular classes served. However, according to a generally recognized principle of rate-making the lower limit of the rate to be charged is the marginal cost and all classes contribute something above this cost toward the general expenses in accordance with their ability to pay. This principle is commonly known as charging "what the traffic will bear," and represents the value of the service to the user. The marginal cost may be defined as the additional costs to a going concern of serving a new customer or class of customers and is often used as a basis for the rate charged by electric utilities in developing a new class of business. Because of the pioneering nature of rural electrification farmers can not be expected to pay more than this marginal cost for several years. In fact, very often in rural service the value of the service is below the marginal cost to the com-

(November, 1928). These articles are based upon a study made of the problem at Northwestern University School of Commerce for a degree of Master of Business Administration and as a research problem in the Institute for Research in Land Economics and Public Utilities by the author in 1926.

The author wishes to correct an error in Table I (p. 341) in the first article. California should lead the entire list of states with 7,850 annual h. p. hours per farm (Col. 3) and 485 kw.h. per farm per month (Col. 4).

pany. Obviously, the development of rural service is directly dependent upon raising the value of the service to the farmer (principally through education in raising the standard of living of the farmer) or charging a rate below cost. In any case the cost of service must be determined as a bench mark.

Two major divisions are generally made in determining electrical service costs: (1) readiness-to-serve costs which are independent of the quantity of energy used and (2) the production costs which include the current operating expenses varying with the amount of energy used. Usually the rate-schedule will consist of the readiness-to-serve costs as a service charge or minimum bill plus the production costs as an energy charge per kilowatt hour. The operating costs incident to producing and delivering a kilowatt hour of energy are fairly well known or readily determinable for any system.¹ In determining the readiness-to-serve costs only the additional investment is considered and allowance made for the average cost of the free extension generally made for the city domestic customer.² Four items are commonly recognized as making up the service charge. These items expressed as percentages of the additional investment required are generally as follows:

Return on the investment.....	8%
Retirement expense.....	4%
Taxes and insurance.....	1½%
Operation and maintenance of distribution line.....	4%
Total.....	17½%

These allowances are rather high and are largely general estimates which will

¹ Results of some tests have indicated that often as much as 50% of the energy input to the customer's transformer is lost in the line and transformer itself because of the farmer's poor load factor. This loss should be recognized in the energy charge.

vary among companies operating in different localities.³ For the average rural customer an additional investment of \$400 is necessary. Using the 17½% shown above, the farmer's minimum bill would be \$70 per year to which must be added the cost of the energy used. Assuming the farmer uses 75 kw.h. per month at an average cost to the company of 3 cents per kw.h., the yearly energy cost would be \$27.50. Hence, regardless of what form the rate actually assumes, if it is to return to the company the cost⁴ of service, the farmer must consider \$90 a year as his approximate bill. This bill represents approximately 11% of the farmer's net money income before deducting interest on the capital invested in the farm or reward for labor and management.⁵ On the other hand, the average bill of the city domestic customer is less than \$30 per year.

The above facts indicate that in some localities and during the developmental period the cost of rural service is above what many farmers can afford to pay or may willingly pay at first. Though the benefits of rural service are admittedly great, substitutes for this service and other means of receiving comparable benefits limit what some farmers feel that they can afford to pay. Only through making this service pay for its cost by supplanting present sources of power or fuel or raising the standard of living of the farmer will the value of the

² The average cost of the free extension for a city domestic customer is probably \$50, or equivalent to one pole span of wire.

³ What would seem to be more equitable allowances are as follows:

Interest.....	6%
Retirement expense.....	4%
Taxes and insurance.....	1½%
Operation and maintenance.....	2½%
Total.....	14%

⁴ Hereafter wherever cost of service is mentioned the marginal cost is implied unless otherwise stated.

⁵ *5 Crops and Markets*, No. 7, Table No. 5 (July, 1928).

service exceed its cost.⁶ Hence, if rates are to be based upon the value of the service to the farmer, as they must reasonably be for the present or during the development period, for many farmers these rates would have to be below cost to the company. Rates below cost of service to various classes of customers are not uncommon in the electric utility field. Some of the reasons to be found for such rates are (1) the essentiality of the service, (2) the practical impossibility of determining the precise cost, (3) the impracticability of collecting the necessary price, (4) precedent, and (5) an incentive to company officials to build up the farm load. Almost invariably in city railways the "hub supports the fringe." The large volume of concentrated short-haul traffic within a city pays for a part of the fixed costs or possibly even the operating expenses of outlying and interurban lines.⁷

However, "business is not a charitable institution"⁸ and, if a rate below cost is given the farmer, the urban consumer must bear the burden. On the assumption that the commercial light and power customers cannot be burdened with this deficit, placing it all in the lap of domestic customers would mean an increase of less than 40 cents per month per customer. This estimate is based upon charging the farmer average small town rates and includes those farms which

fall within a range of three per mile of distribution line.⁹ Certainly any fear of overburdening the urban customers through such a policy has no foundation in fact, especially when it is considered that as the farmer increases his use of service he will gradually assume his share of the general cost as well. In many cases a rural rate below cost means that further reduction in existing urban rates may have to be postponed to enable the utility to develop rural lines or that the utility forego a full return upon its rural investment during the development stage of the business. But, "even if rural service is always to be some slight burden on the urban district, it is very possible that the urban population may prefer this situation rather than that the rural district should not be served at all."¹⁰

A definite trend toward lower rates to farmers during the past five years is noticeable. The original attitude of most utilities in insisting upon a cost basis of rates was apparently a conscious effort to impress the farmer with the high cost of the service he was demanding. Farmers are becoming educated to the value and cost of electric service and their willingness to shoulder a fair proportion of this cost is evident at present. Operated as a monopoly under state control the electricity supply company owes a duty to its whole territory, both urban and rural, and not alone to certain

⁶ Renewed enthusiasm is being aroused among public utility managers by the use of the electric range and refrigerator on the farm. It seems that this development is limited by the farm income. However, once the farmer has electric service its value appreciates greatly and he finds more extensive use for it.

⁷ The discrimination is obvious. Yet extensions are still being built that will require years before they are self-supporting, if ever at all. Attempts at overcoming this situation are made through fare zones or the use of buses as feeders.

⁸ This statement was often made to the author in discussing this question with various men in the field.

⁹ The increase of 40 cents per month was arrived at as follows: Assuming 25% of the farms of the country

within the range of three per mile of distribution line and \$1200 as an average cost per mile would mean an investment of \$700,000,000, from which \$233,323,000 a year would be required to meet fixed costs. Further assuming 75 kw. h. per month per farm customer and an average rate of 10 cents per kilowatt hour, the total revenue received would be \$130,000,000, creating a deficit of approximately \$100,000,000. This deficit spread over the 22,000,000 lighting customers in the United States would mean an increase of 38 cents per month per customer.

¹⁰ Report of the Rate Research Committee, National Electric Light Association, *Proceedings*, 1925, p. 132.

profitable sections which it may choose to consider its service area. "Service to the agricultural industry is too complicated to be solved by a mathematical formula. It involves social demands and responsibilities which are just as important as the kilowatt demands and system peak responsibilities with which they must be considered."¹¹ Far-sighted men in the electric light and power industry are realizing these facts and advocating that rates below cost of service to the farmer would be a sound business and public policy from the point of view of good public relations alone.¹² The guiding factor in this case, then, would be a reasonable return to the utility on its total investment rather than having each class of service cover its own costs. How far this principle may be carried as a general policy is questionable and the dangers involved in its general application are obvious and significant. In rural electric service, however, the issue seems clear-cut, and the application of this principle appears justified, at least wherever three customers per mile of line can be found.¹³

There are probably as many different types of rural rate-schedules in use as there are companies serving farm areas. Actually they all have a common form in having a service charge (in the form of a minimum bill) and an energy charge. The energy charge portion of the rate is often the same as that for the company's urban domestic service and the additional charges necessary to care for the extra cost of serving the farmer are placed in the service charge. Where the

customer is asked to finance all the necessary line extension it would seem that he should receive the nearest urban rate or less.

The point of greatest difference in rural rates is in the service charge; not only in the actual amount of the charge but also in the manner in which it is levied. In one case this charge included a fixed meter charge, a transformer charge varying with the size of the necessary transformer, and a monthly billing demand based upon the connected load. While such a rate may be readily explainable and more nearly approach the proper cost allocation, it appears unduly complicated. Simplicity is much to be desired in a rate-schedule in order that the farmer may be able to check his own bills. The purpose of the service charge as a minimum bill is obviously to protect the investment made by the company in the line extension against the possibility that the customer will use too small an amount of service to pay for the fixed charges on this investment. Usually this charge can be varied according to just one factor, such as the size of transformer necessary to serve the customer, perhaps combined with the number of customers per mile where this latter condition is not cared for in the financing of the line extension. Some companies have several optional rural rates in force depending upon the method used to finance the line extension. This policy allows the farmer a choice and in this manner enables the utility to reach a greater number of farmers. However, the farmer is likely

¹¹ L. S. Wing, "Rural Electrification from an Economic and Engineering Standpoint," p. 3. Paper presented before the American Society of Agricultural Engineers, June, 1926.

¹² "I don't think that it would be bad business for our states to recognize fully and clearly that to spread the little, almost immeasurable, cost of extending electric service over the farming areas upon the areas whose income is more represented by United States money

than is the income of farms. . . . (would make) living conditions on the farm more attractive." Alex Dow, Report of the Rate Research Committee, National Electric Light Association, *Proceedings*, 1925, p. 34.

¹³ No attempt can be made here to determine just where the line should and can be drawn in determining what classes of service should receive rates below cost because of their essentiality or as a broad public policy.

to forget the difference in amount advanced by his neighbor to get service and the difference in rate may be apparent discrimination causing dissatisfaction. Every farmer in any one territory should be on the same rate-schedule. It would also seem essential that one rate should apply to all uses of service on the farm including household appliances, power and cooking.¹⁴ In many cases special power or cooking rates are offered to encourage such uses and assist in the sale of service. Usually, the same results can be obtained in selling such service on the lower portions of a step rate or on the basis of the lower cost per kilowatt hour of all additional energy used. These general principles of rate-making are not new in the electric light and power industry and apply equally to rural service and urban customers.

Comparison of rate-schedules is difficult and accompanied by dangers that are not often perceived. Rural rates as they exist today are necessarily derived from the method of financing the particular extension, the density of the farming area served, and the type of farming which will tend to determine the average probable use of the service. Hence, these factors must all be decided or ascertained before an intelligent rural rate can be formulated. Satisfaction and success in the promotion of rural service have been experienced with widely different rate-schedules.

"Regardless of what form a rural rate may take, it must be designed for the purpose of building up the rural load rather than earn an immediate full return. The most successful rural service rates now in effect are not yet returning all of the fixed charges but they are unquestionably successful in

building up a load which will, in the near future, provide for a full return on the company's investment. It is almost axiomatic that a rural rate sufficiently high to be immediately profitable is too high to be successful as a load builder."¹⁵

In the meantime probably the real difficulty in designing a rate-schedule is to determine how much of the extra cost of serving the farmers can be successfully introduced into the rate charged or whether this cost should all be taken care of in the plan of financing the extension. This problem is not strictly a rate question but rather that of financing the line extension.

Financing the Line Extension

Originally farmers' demands for electric service were generally met with the request by the company for a cash deposit toward building the necessary distribution line. This demand was an extension of the general policy of most electricity supply companies toward extending its lines within or out from the area served to customers whose probable use of the service would not return the additional investment in two or three years. In dense farming areas surrounding large central markets, the risk attending the investment was not so large and the cost per farmer was less. Likewise, in California and other states where considerable power was necessary for irrigation and drainage purposes, the possibility of profitable loads reduced the risk on the required investment. Over the country as a whole, however, farms are spread out on an average of three per mile and the probable use of electric service per farm or per mile of distribution line is small.¹⁶

¹⁴ For the average farm customer at present the total use of electricity can usually be metered with a single meter. Such an installation will allow for the lowest cost of wiring the farm for service as well as lower the investment of the supply company and reduce the billing cost.

¹⁵ G. W. Van Derzee, "Rural Electric Service," a pamphlet printed but not published by the Association of Edison Illuminating Companies, October, 1928, p. 6.

¹⁶ See first installment of this article, 4 *Journal of Land & Public Utility Economics* 337-346 (1928).

This made the cost of receiving central station service prohibitive to most farmers. Nevertheless, the demand for electric service on the farm continued to grow with the result that many individual lighting plants were installed on farms. Some farmers organized their own cooperatives for building and maintaining an electrical distribution system and others organized to obtain lower rates or a more liberal policy of financing from the electric supply company. The problem of financing the rural extension is not simply to determine who should make the investment; it involves also a determination of the risks involved and a decision as to just what risks the company should assume as part of a sound development policy.

Many plans have been developed and put into use by various companies for building rural electric lines. All of these plans have been devised to meet the particular conditions in the territory served, and very few of them have been in use a sufficient length of time to prove their relative merits. For purposes of analysis the various plans can be grouped as follows: (1) customer financing and ownership; (2) company financing; (3) joint customer and company financing; and (4) federal or state subsidy.

Customer Financing and Ownership. Various means are available to farmers for financing an electric extension:

"Following is a list of the more promising methods of procedure:

- A. Organization of an incorporated electric light and power company;
- B. Organization of a simple association to build an extension and turn over to a utility to maintain and operate;
- C. Organization of an association to build, own, maintain, and operate an extension, buying electric energy wholesale through one meter;
- D. Organization of a partnership association, with or without the issue of stock."¹⁷

Plans A, C and D involve farmer-ownership of the line extension, implying the maintenance and operation of the system by the farmers. Such maintenance and operation are tasks requiring men with special training and experience in the work. Experience with farmer-operated telephone lines indicates that farmers usually fail to maintain properly such lines or provide for their replacement. Poorly maintained electrical distribution lines, even more than poorly maintained telephone circuits, mean poor service in addition to considerable hazard to human life. As yet, not many farm organizations operate and maintain electrical distribution systems. Where such organizations exist, they may be attributed generally to one or more of the following causes: (1) The utility refused to assume the responsibility; (2) The farmers believed lower rates would result; or (3) The farmers refused to alienate title to the extension, this being usually required where the utility is to operate and maintain the extension. After farmers have built an extension it is difficult to convince them that they will benefit by turning the system over to a utility company to operate and maintain. Like many other farm cooperative organizations, success depends upon securing good management and farmers are often unwilling to pay the price. However, the chief advantage of such farm organizations is that they build the line with their own labor and thus reduce the cost. But even in building the line, expert supervision is necessary and if the utility builds the line it can also employ farm labor.¹⁸

¹⁷ "How Farmers Can Secure Electric Service by Cooperative Effort," Pennsylvania Department of Agriculture, *Bulletin No. 16*, September 15, 1925.

¹⁸ Farm labor should be used in building and maintaining rural lines wherever possible and practicable so

(Continued on page 85)

On the whole, therefore, there is little or no advantage to the farmer in owning and maintaining his own electric service system. Moreover, the utilities themselves look with a great deal of disfavor upon cooperative ownership of rural extensions. The possible development of a large number of small public utilities to control and operate more than 550,000 miles of rural distribution lines¹⁹ would constitute a significant invasion of the utility field. Such a condition would hinder the expansion of present urban distribution lines, were future conditions (decentralization of industry, growth of suburbs and expansion of city limits) to require such extension.

Where farmers contract with the company to build the line and pay the pro-rated cost or build the line themselves for the utility to operate, some method must be used for crediting each farmer with the money he has invested. In some cases this is done by charging a rate which has been reduced by an amount equivalent to interest on his investment. In other cases not only is the farmer given a lower rate but his investment is refunded to him in either monthly or quarterly installments as a percentage of his bills for service.

The chief advantage claimed for customer financing is the lower rate that can be used. The lower rate is an unquestionable incentive to greater use of service but is a negligible factor where the farmer is left, after investing in the extension, without the funds to purchase the necessary equipment.²⁰ An-

other advantage asserted in behalf of this plan is that farmers will cooperate or try to induce as many of their number as possible to take service from a proposed extension, thus reducing the cost per customer to a minimum.

The disadvantages accompanying the customer's financing the line extension are rather serious. When the cost of the line is added to the cost of wiring the home and purchasing equipment, the total investment required is beyond the means of the farmer. His cash position is generally poor and his borrowing rate high. The utility can generally, at present at least, borrow money more cheaply than can the farmer and thus reduce the net cost of the service to the farmer on extensions for which he would have to borrow money. Where the company feels that the risks of a rural line investment are too great, it is questionable whether the farmer can afford to assume the responsibility which the utility refuses. As the problems involved in rural electrification have become more generally understood there has been a growing tendency for the utility to finance the necessary line extension either partly or entirely. Those companies which still demand customer financing, even in the more prosperous farm districts, will be found to lag behind the others in the development of rural service.

Company Financing. The electricity supply company is in the business of selling service and as a general rule makes all the investment necessary in delivering service to the customer. To

(Footnote 18 continued from page 84)

as to reduce to a minimum the cash outlay required. The problem of maintaining rural lines during severe winter months is a serious one; the fact that farmers have considerable time available during these months may be useful in solving this problem.

¹⁹ Again assuming 25% of the farms within a range of three per mile of line electrified.

²⁰ One company, which used the plan of customer financing and refunded the advances in installments,

had the following experience in one of its districts of well-to-do farmers: A number of \$100 refunds were to be made. Instead of mailing the checks a salesman delivered them personally with the hope of selling some appliances. Of the entire number visited, not a single appliance was sold. This would seem to prove that the time to get the farmer to purchase equipment is at the start.

obtain the necessary capital and remain in business the investment must be reasonably secure and the risk of an inadequate return upon the investment not too great. The possibility of the farmer discontinuing use of service before expiration of his contract, thereby causing the company a heavy loss on its investment, is very small. In districts where the proportion of tenant farmers is large the risk is greater and should be carefully considered. But usually the farmer must make as great, if not greater, investment than the company in order to make use of the service. Generally the farmer will not make this investment if there is a possibility of his discontinuing service in the near future. On the other hand, assurance that a farmer will be able to meet his bills is almost impossible. It should be recognized that once service is installed, its value to the customer increases with use, and hence greater efforts or sacrifices will be made in order to meet payments. The electric bill may be a significant percentage of the farmer's net cash income but it is a comparatively small item in his total expenditures. The real problem for the utility is to secure a return upon the rural line investment. This is really a rate problem. But, having decided that a rate below the additional cost of service is necessary to develop demand, the problem becomes one of determining how far the company can go in building the lines at its own expense with the particular rate used.

²¹ Rules Governing Rural Extensions, Rule No. 6—"Contract for Rural Electric Service" of Wisconsin Power and Light Company.

Note: Originally the plan of this Company called for an equivalent investment by the customer in current-consuming appliances, and the rate had a service charge of \$5.50 per month for a 1½ K. V. A. transformer. The above demand has since been dropped and the service charge also reduced by \$2.50 per month although the top step of the energy charge made the reduction in the service charge equivalent to about \$1.00 per month.

One plan devised to meet this problem and used by the Wisconsin Power and Light Company is as follows:

"If the number of contracts signed is such that the estimated cost of the extension will not exceed an average of \$400.00 per customer, the company will proceed to construct the extension at its own expense.

"If the cost of the extension is estimated to be more than an average of \$400.00 per customer, the amount by which said costs are estimated to exceed said average shall be contributed by the customers."²¹

This plan places a free extension within reach of the average farm or wherever three customers per mile of line can be found. The accompanying rate will generally net an 8% return on the investment when the customer reaches the point of using 100 kw.h. a month. At present the average use of service on farms in this particular territory is probably slightly under the 100 kw.h. necessary but, within a few years, this average can be reached.²²

A more commonly used plan of limiting the company's investment makes the company's share of the line costs proportional to the amount of service the customer will use. This is accomplished through specifying the investment ratio required from an extension by the company, as follows:

"Company will expend for such extensions an amount not in excess of three years' estimated revenue to be derived from such customers. Should extension require the expenditure of an amount in excess of three years' estimated revenue, customer will pay to the company in advance of the construction of such extension an amount equal to the difference between the estimated annual revenue."²³

²² This Company has a rather large and prosperous rural territory and is developing rural service into a profitable business through its liberal policies.

²³ "Amendment of Electric Service Rules," filed April 26, 1919, to become effective in connection with new business of The Milwaukee Electric Railway and Light Company from and after April 24, 1924.

The effectiveness of the above provision is independent of the rate charged. Assuming a certain use of the service, a high rate would yield the required revenue more quickly, whereas a low rate, though tending to stimulate use of the service, would postpone accumulation of the stated revenue and thus raise the customer's share of the line costs. Under average conditions, to turn the investment in three years requires a gross revenue of \$133 per farmer per year. Assuming a use of 75 kw.h. per month, an average rate of 15 cents per kw.h. would be necessary to bring the customer's bills up to the required revenue. In the case of The Milwaukee Electric Railway and Light Company, which uses the above plan, the average rate for rural service was reported to be 5.4 cents, being only one-tenth of a cent more than the rate paid by residence users in the city of Milwaukee and suburbs.²⁴ On the other hand, the average deposit required per customer is about \$200, which is not refunded to him.²⁵ Actually, the farmer must consider a return on his investment as a part of the rate he is receiving. If interest at 8% is computed on this \$200 and added to the farmer's bill, the average rate would then be approximately 7 cents per kw.h. In this same territory an average use of 84 kw.h. per month per farmer has been reached, but at least 100 kw.h. a month is necessary before the company can earn a full 8% return on its investment.

A plan which recognizes the customer's investment is established by the rules of the Public Service Commission of Oregon.²⁶ This scheme designates a so-called development period during

which the estimated total revenue from the extension will not accumulate an average of 40% of the cost of the extension yearly, that is, an investment turn-over once every 2½ years. The difference, or so-called deficit, incurred by reason of any excessive investment made by the company under these conditions, is averaged for the development period and discounted at 5% annually to determine the amount to be paid by the customer.²⁷ In brief, these rules give the farmer interest at 5% compounded annually on his investment in the extension. The plan is rather complicated and for that reason it would appear more desirable to recognize the customer's investment in a lower rate even though that method may be less accurate in crediting each customer for his share in the cost of the extension. The lower rate will also greatly stimulate increased use of the service.

Requirements for turnover of the investment in plans for financing rural extensions range from 1½ to 5 years. The ratio of investment in property and plant in the electric light and power industry to the annual gross revenue is approximately 4 to 1. The turnover of the investment in distribution equipment is more rapid, approximately once in 3 years. At the present time the farm load is an almost negligible factor in causing added station investment. It appears, then, that a ratio of 3 to 1 would be sufficient for taking on new rural business. A higher ratio could be used but would usually be accompanied by a higher rate. With a ratio of 3 to 1, average urban rates could be used and yet the necessary investment by the customer would not seriously hinder the

²⁴ Van Derzee, *op. cit.*, p. 15.

²⁵ No mention was noted in the pamphlet by Mr. Van Derzee of the average deposit made by customers but the \$200 was computed from figures given in this pamphlet.

²⁶ Electric Extension Rules. Public Service Commission of Oregon. Order No. 1126 (1924).

²⁷ The development period is set for each extension individually after a survey of the territory is made.

development of rural service. The flexibility of this plan of financing the extension and the simple manner in which it regulates the customers' share of the costs, at the same time securing the investment of the company, are greatly in its favor.

Joint Utility and Customer Financing. Between the two limits—where the utility refuses to finance all of the extension or where it would finance none—joint utility and customer financing finds its place. The fact is, in such cases, a maximum possible reward of 8% is insufficient for the risk involved. As stated previously, it is questionable whether the farmer can afford to assume a greater burden than the company is willing to assume. It is even questionable whether the farmer can assume an equal burden when he has to advance part of the cost of the extension. The farmer as well as the utility should make a study of costs. Figuratively, in such cases, the farmer may be considered a common stockholder and the company the bondholders. The return to the utility as a bondholder is fixed and has priority over that of the "farmer-stockholder." Furthermore, the company is entitled to an added return because of its managerial duties. If, after consideration, the farmer feels confident that he will be able to make increasing use of service so as to earn a return on his own investment or if the benefits he receives are worth their cost, then he is justified in bearing part of the initial burden.

Federal or State Subsidy. Like many other problems confronting the farmer, a subsidy of some sort has been discussed at various times as a solution. Often the rural electrification problem is compared to the earlier problem of

rural roads. At the present time rural service is a convenience and, though desirable, is not as essential as the roads to the farmer. It would not be considered desirable, ordinarily, to ask the government to place individual lighting plants on every farm. Yet, the difference between that and central station service is only one of degree.

In 1921 the Ontario Government passed "legislation authorizing the bonusing, up to fifty per cent. of their cost, of rural *primary* lines on highways throughout the Province: in 1924 further legislation authorizing the similar bonusing of rural *secondary* lines was enacted."²⁸ It must be remembered that in Ontario the electric light and power industry is publicly owned. Though bonused up to 50% of the total cost, rural electrification has hardly advanced any farther in Ontario than in this country. Nearly all European governments have assisted farm electrification by means of direct loans. Interest as low as 2% has been charged on these loans.²⁹ It is generally recognized that the European farm situation differs from that in America. High fuel costs, scarcity of labor (especially after the war), smaller farms resulting in denser rural districts, and intensive rather than extensive farming are a few of the altering factors. State or governmental loans at low interest rates and for long terms are perhaps far better than any other form of government assistance. Rural electrification in its present stage in America cannot hope to make a major contribution toward solving the present agricultural problems and can hardly justify governmental loans. Indirectly, however, government assistance would result if plans for lighting the rural highways were carried out. Distribution

²⁸ Sir Adam Beck, "The Hydro-Electric Power Commission of Ontario: Its Origin, Administration and Achievements" (1924).

²⁹ See Department of Commerce, Bureau of Foreign and Domestic Commerce, *Special Circulars*, Nos. 311, 295, 308, 307, 301, 297, 300 and 309.

systems extended for the purpose of highway lighting would be within easy reach of farm homes and readily tapped for service. Thus, a large part of the present overhead cost of supplying rural service would be shared by the government.

Outright government subsidies do not seem favored by the American public, except in special circumstances. Nevertheless, careful analysis will reveal many actual subsidies, under different names, both from the government and from one group in society to another. This is the situation in rural electrification during the development period at least, when a rate below cost is used or a liberal policy of financing extensions is followed. Under these circumstances the burden of the subsidy falls on urban consumers, if a reduction of their rates is postponed.

"From a national viewpoint it has been difficult to see a financial return from rural electrification, but the electric light and power industry has frankly acknowledged an obligation on its part to do everything possible toward making electric service avail-

able to the American farmer and his family."³⁰

Conclusion

Rural electrification has come to stay. It may be a long time before electric service on the farm will pay for its cost to the farmer but the demand for service is continually growing. Electricity supply companies will find that the business can be made a profitable one if the field is thoroughly surveyed before plans of financing and rates are adopted. At the same time the company must recognize that a development period is necessary and during this period a full return on its investment cannot be expected. With the present average use of 75 to 100 kw.h. a month on farms, liberal policies of rates and financing can be offered with little risk in undertaking rural service. Wherever possible the nearest urban domestic rate should be used together with a policy of financing which will relieve the rural consumer from part, if not all, of the high initial cost of receiving service. Companies following such policies and making aggressive efforts in developing rural service are already meeting with success.

³⁰ "The Electric Light and Power Industry in the United States," published by the National Electric Light Association. Revised to July 1, 1928.

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

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SUMMARIES OF RESEARCH

PUBLIC UTILITY FINANCING, THIRD QUARTER, 1928

Data on public utility financing for the third quarter of 1928 are submitted here without comment. The annual figures on financing for the year 1928 will be reviewed in the May issue.

PETER LEININGER

TABLE I. INDEX NUMBERS OF VOLUME OF PUBLIC UTILITY FINANCING, 1919-1928*

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
By Months										
January.....	100	67	55	46	122	112	199	173	259	176
February.....	48	28	25	47	66	89	172	125	314	220
March.....	25	27	25	43	94	78	144	115	158	190
April.....	5	38	25	50	64	112	69	182	165	318
May.....	15	38	35	150	66	233	103	230	214	203
June.....	26	20	9	96	92	122	118	181	130	317
July.....	41	25	115	44	21	104	90	177	97	48
August.....	20	11	33	22	40	62	93	58	92	82
September.....	54	44	34	147	34	77	110	38	168	169
October.....	24	33	33	77	59	112	92	123	261	.....
November.....	8	21	119	43	161	69	102	136	212	.....
December.....	20	63	53	54	135	111	153	114	433	.....
By Quarters										
1st Quarter.....	100	71	61	80	164	162	299	240	424	340
2nd Quarter.....	27	56	41	172	129	271	168	344	295	487
3rd Quarter.....	67	47	105	123	55	141	170	159	207	178
4th Quarter.....	30	68	119	101	206	169	201	217	528	.....
By Years.....	100	107	145	212	246	330	373	427	647	.....

*Volume for January, 1919, First Quarter, 1919, and Year 1919 used as basis for computing index numbers for months, quarters, and years respectively. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*.

TABLE II. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW PUBLIC UTILITY SECURITY ISSUES

YEAR	ALL TYPES OF SECURITIES						BONDS AND NOTES	
	All Maturities		Long-Term		Short-Term		Weighted Average Yield	Simple Average Yield
	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield		
1919.....	6.55	6.68	6.21	6.25	6.78	7.03	6.54	6.67
1920.....	7.55	7.64	7.52	7.59	7.59	7.68	7.53	7.62
1921.....	7.13	7.47	7.11	7.42	7.27	7.66	7.11	7.45
1922.....	6.06	6.34	6.03	6.32	6.39	6.53	6.03	6.34
1923.....	6.04	6.31	5.99	6.26	6.73	6.72	6.11	6.29
1924.....	6.03	6.14	6.04	6.16	5.97	6.04	5.98	6.12
1925.....	5.58	5.81	5.66	5.83	5.55	5.86	5.56	5.78
1926.....	5.53	5.72	5.52	5.70	5.77	5.82	5.44	5.66
1927.....	5.24	5.61	5.25	5.57	5.11	5.77	5.12	5.57
1928								
1st Quarter.....	5.09	5.52	5.08	5.45	5.52	5.94	5.14	5.49
2nd Quarter.....	5.16	5.47	5.14	5.42	5.54	5.62	5.15	5.42
3rd Quarter.....	5.66	5.82	5.59	5.75	5.95	6.15	5.59	5.76

A SELF-LIQUIDATING PLAN FOR FINANCING A SUBDIVISION

THE subdividing of a tract of land close to a growing city into typical urban residential lots would seem to imply that they were to be sold to persons who intended to build homes and live in them. In the modern subdivision business, however, this is more often untrue than true. In almost every city in every part of the country by far the larger portion of such lots are sold to speculative purchasers who intend to hold them for a relatively short period and resell at a profit. This fact complicates the question of the installation of the improvements which are necessary before the lots can be used. On the one hand, we find that unless these utilities are installed no homes will be built in the subdivision and yet these homes are essential before any very rapid rise in the values of the remaining lots will take place and thus insure profit to their holders. On the other hand, if the improvements are installed by the subdivider it means an increased financing cost, and also increased merchandising costs because commissions are based on the selling price. In addition, the subdivider will wish to make the same rate of profit on the money which he pays out for the improvements as he makes on that spent for land. All these costs must eventually be passed on to the lot purchasers.

Of course, such a procedure is very desirable for the purchaser for use. He is assured of being able to build as soon as he desires and he knows just how much his lot is going to cost him. However, it is not so desirable for the speculative buyer. It results in his obligating himself for a larger sum and also carries with it increased carrying costs with

their pyramiding tendencies which may offset any rise in the value of the land and thus wipe out his expected profit.

An effort to solve this dilemma has been made by The Sieber Company of Houston, Texas. The plan is called the Sieber Self-Liquidating Investment Plan. The property to be sold under this plan consists of 210.97 acres of level prairie land in Harris County, Texas, approximately eight miles southeast of the center of the City of Houston, lying between Galveston Road and LaPorte Road, both concrete paved, and the most important and most traveled roads out of Houston leading to the principal resorts around the city. The subdivision is to be marketed in parcels of three to six lots each in an unimproved form but with a provision that the purchasers pay for improvements on the specific lots purchased. The plan includes the creation of a corporation, of which the purchasers of the lots become the stockholders, to superintend the installation of improvements and to resell the lots at retail prices to home builders.

J. E. Sieber owned the tract in fee. The first step was to divide the 210.97 acres into 1010 lots in 220 groups of lots, each group containing 2 to 6 homesites. The individual lots range in size from 50' x 115' to 150' x 250'. The purpose of this variation in size is to provide for the needs of workmen in the nearby industries as well as of plant executives. The desirability of the proximity of sites for structures of such a wide range in value is rather questionable but this is a merchandising problem and not essential in considering the financial aspects of the plan. After platting the land Sieber installed shell

roads through the tract. These roads are not intended to be permanent and are to be superseded by asphalt-topped streets before the land comes into use.

The Sales Contract and Provision for Improvements. Before any group of lots is sold Sieber executes a deed of trust (in the nature of a mortgage) for this particular group to the National Bank of Commerce of Houston, Texas. This deed of trust is a conditional conveyance to secure five improvement fund notes executed by Sieber in favor of the bank. These notes become due yearly beginning January 1, 1933, and bear interest at the rate of 8% annually from January 1, 1929. The proceeds of these notes are to be used for installing permanent improvements. Sieber has previously entered into a trust agreement with the bank whereby it becomes trustee for these funds which are to be used by the sales corporation owned by the investing purchasers. The use to be made of the funds is shown by the following sentence in this trust agreement.

"The management and control of the expenditure of the improvement fund in the hands of second party shall be entrusted to said corporation, said party agreeing that said improvement fund shall be a trust fund to be used only for improvement of the streets, avenues, and drives in said subdivision, installing public utilities and making such other improvements as, in the opinion of said corporation to be hereafter formed, will be of public benefit to those owning property in said Subdivision."

Each group of lots bears its proportionate share of this fund which totals \$279,412.05. This amount is estimated to be sufficient to install asphalt-topped streets, concrete sidewalks, curbs and gutters, sanitary sewers, gas system and water system. With the installation of these improvements the lots will be usable for a modern dwelling since it is expected that the electricity

and telephone will be installed without charge by the respective utility companies.

The groups of lots are sold to investors with a cash payment of 10%. The balance of the purchase price is evidenced by a promissory note payable in 24 equal monthly installments and secured by a vendor's lien on the lots, subordinate to the lien securing the improvement fund notes. When the lots have been paid for or when a total of \$250,000, exclusive of the improvement fund, has been collected from the sale of lots in the subdivision, the vendor is to execute and deliver to the purchaser a general warranty deed conveying to the purchaser the property covered by his contract. If anything then remains unpaid on the purchase money note, a vendor's lien is to be retained in this deed to secure the unpaid balance and a deed of trust is to be executed by the purchaser to secure payment of this balance.

The purchaser buys the land subject to the encumbrance created by the five improvement notes and deed of trust which Sieber has made in favor of the National Bank of Commerce of Houston, Texas. These notes are assumed by the purchaser, making him personally liable in case of foreclosure. In the sales contract the purchaser also agrees that, when he receives his deed or any time thereafter, he will execute and substitute a deed of trust and five improvement notes replacing those executed by Sieber.

The Resale after Improvement. In order that the investors may realize on their investments some provision must be made to sell the improved lots. This is provided for by the vendor agreeing in the sales contract that when he has collected \$250,000, exclusive of the improvement fund, he will organize a corporation with a fully paid up capital

stock of \$33,200. The capital stock of this company is created by the vendor setting aside 10% of the sale price of the groups of lots as they are sold. When an investor has paid for his land in full, the vendor transfers to him enough stock to equal in par value 10% of the purchase price of the land he has bought. This resale corporation shall have the exclusive sales agency on all lots sold to the investors for a period of two years after the date of its incorporation. It is agreed, however, that the investor shall have the option of holding his lots for further increase in value, if he so desires. If he sells them, however, he must do so through the company, paying it a commission of 15% of the price at which the lots are sold.

At the time the resale company is organized, the trustee holding the improvement fund notes is to sell these notes and turn the money over to this company, which shall use it to install the improvements in the entire subdivision. Any money received from the trustee through the sale of the notes in excess of the cost of the improvements shall belong to the company. This corporation also becomes the owner of the gas utility and of the water utility, the estimated costs of which are \$55,700 and \$33,000 respectively. The Houston Gas Company has offered to pay the corporation \$100 on every connection made to a home within a period of five years with a maximum refund of the cost of the utility. A similar arrangement applies to the water utility. If the property develops as is expected, the investors, who are the stockholders in the company, should get back a large part of the money they have spent out

of their improvement lien in improving the subdivision.

Comments. This plan of marketing subdivisions seems to be admirably designed to pass all the risk to the investor during the period of improvement and development of the property. The investor also assumes all risk of changes in the value of this tract during the ripening period and all the costs incident to the resale of the lots to the public. On the other hand, the possible profit to the investor is greater than in the ordinary subdivision if the property develops according to expectations. The speculative features are thus enhanced and the original subdivision process is removed one step farther from the use to which the land is eventually intended to be put.

At the same time, the subdividing company has done very little toward the development of the property except to record the tract, subdivide the property and place shell on the streets. Its profit comes from the difference between the original acreage price and that at which the tract is wholesaled to investors. The same percentage of profit can be made on the smaller outlay required as could be made on the larger amount required if improvements were installed and the lots sold at retail. Furthermore, the risk involved for the subdivider is probably much less.

In spite of these considerations the speculator's chance for profit under the Sieber Self-Liquidating Plan is probably at least equal to what he would have if he purchased a lot in an improved subdivision, paid the subdivider's price, and had to face the rapidly mounting carrying costs.

A. D. THEOBALD.

COMMENTS ON LEGISLATION AND COURT DECISIONS

THE SUPREME COURT ON VALUATION AND INTER-CORPORATE RELATIONS

CERTAIN practices by which some holding companies in the utility industries evade the rigors of rate regulation by state commissions have inferentially been censured by the United States Supreme Court in the first opinion¹ in a rate case handed down after the Christmas recess. The decision is significant not only for its bearing upon the problems of state regulation of holding company operations² but also for its handling of intercorporate relations within an integrated system only part of which is regulated. The particular practices frowned upon were: (1) the use of hypothetical, speculative, and unregulated earnings in computing a rate-base that would support a claim of confiscation; (2) the unfair division of joint revenue by contract between a regulated gas utility and an unregulated gasoline extraction property, separately incorporated but owned in common. The opinion of the court by Mr. Justice Stone, with Mr. Justice McReynolds concurring in the result, deserves to rank among the more realistic pronouncements in utility cases.

The United Fuel Gas Company,³ a West Virginia corporation, produced

¹ *United Fuel Gas Co. and Warfield Natural Gas Co. v. Railroad Commission of Kentucky, et al.* (No. 1) —U. S. —; full text in *United States Daily* (January 3, 1929). A substantially similar case from West Virginia was decided at the same time, *United Fuel Gas Co. v. Public Service Commission of West Virginia, et al.* (No. 4) —U. S. —.

² See *supra*, pp. 19-28.

³ At the time these proceedings arose (1923) the United Fuel Gas Co. (of West Virginia) was controlled by the Columbia Gas and Electric Company which

natural gas from fields located principally in West Virginia, the gas being sold, to consumers in West Virginia, Kentucky and Ohio, either directly or through corporate subsidiaries. At the time proceedings were begun before the Railroad Commission of Kentucky, the United Company was distributing and selling gas in several Kentucky cities although its franchises to do so had expired several years earlier (1918). After these proceedings were begun the United Company organized (June, 1923) the Warfield Natural Gas Company, a Kentucky corporation, to which it conveyed its property in that state.⁴ The Warfield Company, the stock of which was owned by the United Company, bought gas from the parent company at the state line for 30 cents per 1000 cu. ft. and distributed and sold this gas to the same communities formerly served by the United Company at 40 cents.⁵ A reduction to 80% of this retail rate had been ordered by the Commission, but promptly upon organization of the Warfield Company, the subsidiary filed with the Commission a new rate of 45 cents.

owned 51% of the capital stock (control acquired in 1915) and the Ohio Fuel Company which owned 49% of the stock. (Moody, *Public Utility Investments*, 1923, p. 1552.) It is still controlled by the same interests sponsoring the Columbia Gas and Electric System (Moody, 1928, p. 293) and is the principal gas company in the Charleston group of the Columbia system.

⁴ "The United Company then purported to withdraw from all its business in Kentucky by cancelling appointments of agents to receive service of process within the State and by notifying the Secretary of State of its action."

⁵ Less 5 cents for prompt payment.

After hearings, the Warfield Company's new rate was disapproved and the Commission construed its former order as requiring a rate of 28 cents (80% of 35 cents).⁶ Thereupon the Company asked in the Federal District Court for an injunction restraining the Commission from establishing its alleged confiscatory rate. The final decree⁷ granted by the lower court fixed a 32-cent rate (80% of the former 40-cent gross rate charged by the United Company) and enjoined a lower rate. The case came to the Supreme Court on direct appeal.

Of the several grounds for challenging the Commission's order,⁸ this note gives attention only to those deemed most interesting from the economic point of view. The first noteworthy point is that the United Company did not "seriously deny" that the Warfield Company should be treated as its agent for performing public service in Kentucky; it admitted the community of interest resulting from centralized control and system operation. As a derivative, the business and property of the entire system should be treated as a unit in determining whether the rates imposed on the subsidiary company were confiscatory. In other words, the contract price (30 cents) for gas sold to the dis-

tributing company at the state line did not control the determination of local rates of service.⁹

The decisive point, chiefly argued, was therefore whether the Commission's rate, as revised by the lower court, yielded a non-confiscatory return upon that portion of the value of the system property and business properly allocated to the Warfield Company. The evidentiary valuations of the entire business and property in the two states are in Table I. The major difference is found in the values of gas lands, leaseholds and rights recorded on the company's books and estimated by the Company for the instant case.¹⁰

The Company's valuation of gas lands and rights was based on certain assump-

TABLE I. SUMMARY OF FINDINGS OF VALUE, UNITED FUEL GAS COMPANY

Item	Values Claimed by Appellant Companies	Values Found or Assumed by Lower Federal Court
Physical Property.....	\$22,274,274	\$22,274,274
Gas Lands, Leaseholds and Rights.....	36,449,176	6,732,920*
General Overhead Charges.....	6,357,046	4,009,370
Working Capital.....	990,000	999,000
Going Concern Value.....	8,423,105	3,000,000
Totals.....	\$74,493,601	\$37,015,564

* Book value.

effect a renewal of the franchise in violation of the state constitution. But this objection, as well as the challenge to Commission jurisdiction, did not come appropriately from parties who had procured Commission action. Moreover, if a state may constitutionally require reasonable extension of service, as has been held, it may also require continuance of present service, so long as the company does business in the state.

⁹ "In view of the history and intercorporate relations of the appellants it is not contended that this contract rate is of any controlling significance in determining the propriety of the rate fixed by the Commission." In short, the companies did not object, indeed claimed, that their property and business should be treated as a unit, regardless of state lines, in calculating a rate-base. Of what avail, then, was the separate incorporation of the Kentucky business?

¹⁰ In the Supreme Court the Company accepted the lower court's values of items other than gas land, leases, and rights.

⁶ The former net rate.

⁷ 13 F. (2d) 510 (1925).

⁸ Aside from the points hereinafter considered, the following were offered: (1) The rate-order, "which, under the Kentucky statutes, is not subject to judicial review, was not supported by findings of the Commission"; (2) That part of the order requiring the Company to continue service violated the Kentucky Constitution; (3) The Commission lacked jurisdiction because the Act creating it violated the clause of the state constitution providing that "no legislative act shall relate to more than one subject, which shall be expressed in its title."

All these challenges were overruled. The Federal Courts have jurisdiction to pass on questions of state law since questions are raised under the Federal Constitution. The statute subjecting to Commission authority any public service company which continues service after expiration of its franchises was alleged to

tions which were taken by the court "for present purposes only," "without determining their validity." Stated as briefly as possible these assumptions were: (1) Present reproduction value is the proper standard for ascertaining a rate-base; (2) In addition to a remunerative return on the business as a whole, the earnings of the Kentucky regulated business, separately considered, must be adequate;¹¹ (3) Both proven and probable gas acreage, prudently acquired, is included in the rate-base; (4) Depreciation and amortization are to be calculated on present value rather than original cost or investment; (5) "Delay rentals" on gas leases,¹² pending drilling and development, are properly chargeable to operating expenses. The actual cost of the gas fields was "not shown" but appeared to be "substantially less than the book value." Moreover, the market value of the leases was not ascertained, although such leases are sold, singly or in blocks, in the open market. Instead of either actual cost or market value, the Company urged "that their assembled holdings¹³ of gas rights are unique in that they cannot be reproduced and that their value depends largely upon their peculiar nature and situation."

This claim of enhanced value was buttressed by two classes of expert testimony. Experts in geology and mining engineering estimated the capacity of the gas pools in both proven and probable territory, the cost of trans-

mitting this gas¹⁴ to Pittsburgh¹⁵ on an annual production schedule which would absorb the estimated reserve in 18 years, and the revenues obtainable from selling for industrial purposes at 35 cents in the (at present) unregulated market in Pittsburgh. "At this price, natural gas, it was said, could compete successfully in Pittsburgh, for industrial purposes, with gas produced from soft coal at the prevailing price of \$2.75 a ton at the mine." These revenues "would pay a fair return upon investment, repay taxes and investment, and leave a balance, when discounted so as to give present value, of \$32,458,129." A somewhat higher value was estimated by another engineering expert, taking 30 cents as the market price in Pittsburgh and concluding that the gas in the ground was worth 5 cents per 1000 cubic feet, to which was added the cost¹⁶ of acquiring additional improvable and unfavorable acreage.

The other class of expert testimony came from business men in the natural gas industry. These witnesses estimated the "price which the property would bring if sold by a willing buyer to a willing seller," the estimates varying from \$30,000,000 to \$45,000,000. The basis of these estimates, however, was not "prevailing prices for gas leases" or "actual sales," but computations similar to those of the geologists and engineers.

These valuations were severely punctured by the Court. Waiving the "not

¹¹ Of a total of 814,910 acres in the gas field, 41,969 acres were owned in fee and the balance controlled by lease or contract. These holdings were not in a solid block; they were widely scattered and frequently "adjacent to or interspersed with gas fields controlled by others." Nevertheless, the court "conceded" the acreage was well selected for economical development and to avoid loss by drainage.

¹² From the nearest point on appellants' mains.

¹³ A market not then entered by this Company.

¹⁴ There was unchallenged evidence "that the average cost of acquiring unoperated acreage during 1921 to 1923 was 83 cents per acre and that in 1923 appellants acquired 15,184 acres at a cost of 66 cents per acre."

¹¹ "Appellants contend that for the purpose of determining whether the rate is confiscatory, the regulated business in Kentucky must be separately considered and it is immaterial whether or not a fair return is being made on the entire business, a part of which is unregulated."

¹² "Though the leases vary in terms, a typical lease grants for 10 years the right to drill for gas" with the privilege of renewal at fixed small annual delay rentals, varying from 25 cents to \$2 per acre, materially increased in the form either of a fixed rental or a royalty if and when production is established.

inconsiderable" difficulties of full physical¹⁷ and legal control of the claimed gas supply for 18 years, the court rejected the alleged values because of an unwarranted assumption of immunity from regulation and because of other predictions which "are in the highest degree speculative." From the standpoint of regulation, the language of the Court in its first objection is pointed enough to quote:

"It is true that a part of appellant's business is not regulated at present, but it does not appear that the ultimate distribution of their product to consumers in other States will be immune from regulation either because of the interstate commerce clause, *Pennsylvania Gas Co. v. Public Service Commission*, 252 U. S. 23; *Public Utilities Commission v. Landon*, 249 U. S. 236, or for other reasons, and there can be no reasonable assumption that it will be. The unique character of appellant's control over a natural product, limited in amount, asserted here as a basis of value, the obvious necessity of securing franchises or special privileges to enable them to distribute their product to consumers under the conditions assumed, and other circumstances which subject them to regulation in Kentucky and West Virginia, make inadmissible the assumption that the price to consumers would remain unregulated elsewhere."

Having accepted the lower court's use of book value of gas rights, the remainder of the valuation argument was quickly mowed down. Taking the Company's claimed valuations of the other property items, the Court arrived "at a total assumed maximum valuation of appellant's entire property of \$44,387,754." Twelve per cent. was the "largest amount" that could be allocated to the Kentucky business; the Company claimed only 11%. On this allocated rate-base of

\$5,326,530, a return of 14% (8% plus 1½% depreciation, plus 4¼% amortization) would amount to slightly less (\$4,125) than the actual return under the challenged 32-cent rate.

As additional support for this conclusion, the Court disapproved the holding Company's method of siphoning revenues¹⁸ from the regulated to the unregulated portion of the system's business. In the process of producing natural gas for consumption, gasoline is extracted as a by-product before the gas goes to the transmission system for distribution to consumers. Formerly the United Company "maintained and operated its own gasoline extracting plant." When the West Virginia Public Service Commission held "that 50% of the net return from the sale of gasoline should be credited to the gas business, the United Company organized a corporation, the Virginia Gasoline and Oil Company, and conveyed to it its gasoline extraction plant, receiving the stock of the new corporation in exchange."¹⁹ It then entered into "a contract with this subsidiary by which it receives one-eighth of the gross profit from the gasoline extracted." The United Company claimed that the lower court erred in including in the earnings of the Kentucky utility 50% of the *net* earnings from gasoline extraction, instead of the 12½% of *gross* profits recorded on the books of the companies. However, the West Virginia Commission had looked into this transaction and both it and the Supreme Court of that state had held²⁰ that the allocation of 50% of net earnings was reasonable; and this view had been adopted by the lower court in the instant case.

Here was an illustration of the diversion of earnings to escape regulation,

¹⁷ The fugitive character of this form of mineral property is well known.

¹⁸ Amounting to \$65,166.

¹⁹ Later this stock was turned over to its own stockholders, two corporations.

²⁰ *City of Charleston v. Public Service Commission of West Virginia*, 95 W. Va. 91 (1923).

using the instrument of a contract between parent²¹ and subsidiary corporations. The court's opinion of this transaction is particularly interesting in view of previous declarations²² that contracts between affiliated corporations should not be set aside except for fraud or undue influence.

"We need not labor the point that a public service corporation may not make a rate confiscatory by reducing its net earnings through the device of a contract unduly favoring a subsidiary or a corporation owned by its own stockholders. Cf. *Chicago and Grand Trunk Ry. v. Wellman*, 143 U. S. 339, 345. We recognize that a public service commission, under the guise of establishing a fair rate, may not usurp the functions of the company's directors and in every case substitute its judgment for theirs as to the propriety of contracts entered into by the utility; and common ownership is not of itself sufficient ground for disregarding such intercorporate agreements when it appears that, although an affiliated corporation may be receiving the larger share of the profits, the regulated company is still receiving substantial benefits from the contract and probably could not have secured better terms elsewhere. *Southwestern Bell Telephone Co. v. Public Service Commission*, 262 U. S. 276, 288; *Houston v. Southwestern Bell Telephone Co.*, 259 U. S. 318.

"But this case is not of that class."

The West Virginia Commission's 50% allocation was "based upon actual contracts for gasoline extraction where the parties, dealing at arms' length, had agreed upon 50% division." Moreover, "credible evidence was introduced below tending to show that expenses on property used jointly by the two companies

and properly allocable to the gasoline company had been borne by the gas companies to an amount in excess of the return received by them from the gasoline extraction." Furthermore, the United Company did not challenge evidence showing "that the extracting company during the years 1917 to 1922 inclusive, after allowing appellants 50% of the net earnings for the extraction privilege, would have earned not less than 102% of its capital investment in each year. The average yearly profit during this period was 119.75%. In 1923 its net return on this basis was 80.40%." Somewhat sarcastically, Mr. Justice Stone comments: "Making allowances for fluctuation in market prices and other common business hazards, we do not think it would be difficult to induce capital to seek investment on the basis of this division of net earnings."

Without attempting a review of authorities, Mr. Justice Stone's opinion is believed to presage a somewhat more realistic treatment of holding company operations in the utility field. From this point of view discussion of the valuation technique—the backbone of the case—opens up an interesting line of inquiry into the regulatory status of interstate transmission of gas.²³

Plainly what the Company attempted to do was to inject into the regulated rate-base values derived from assumed unregulated pricing. But the assumption was obviously fallacious; for not only was the retail pricing of gas

²¹ The United Fuel Gas Company was in reality a sub-holding company, as well as an operating company within the Columbia Gas and Electric System. However, with respect to the Virginia Gasoline and Oil Company, the relationship of the United Company was that of parent and subsidiary.

²² The *Southwestern Bell* cases cited by the Court itself in the quotation below.

²³ Advocates of the original investment standard of rate-base valuation will find Mr. Justice Stone's opinion

a weak reed to lean upon, for the book values of gas rights which were accepted were admittedly not actual cost, nor even present market values in the sense of what similar rights have sold for in the open market. On the other hand, acceptance of the Company's valuation figures for other items was provisional and not determinative of the reproduction cost standard of valuation. The valuation of natural gas supplies is notoriously uncertain and the attitude of the court toward the methods and evidence in this case is therefore not surprising.

originating in another state actually being regulated in Kentucky but also, according to the Pennsylvania Gas case,²⁴ Pennsylvania had the power to regulate such retailing, in the absence of Congressional action, even though indirectly such control might burden interstate commerce.²⁵ It is interesting, however, that the Company in this rate case did not make use of the wholesale price contract between the United Company and its Kentucky subsidiary. If the Commission had sought to modify this contract, on the theory that the 30-cent price tended to make the retail price to Kentucky consumers too high, or if the Company had set up this contract as controlling, the conclusion of the Court (assuming other phases of valuation were impeccable) might have been different following the Kansas Gas²⁶ and Attleboro cases.²⁷ Under these circumstances the Commission would face the task of showing that the price at the state line was higher than it should have been, compared with similar contracts of the same or different companies,²⁸ owing to the community of interest between the wholesaling and retailing companies. Such a determination, it seems clear

from decided cases, would have run afoul the interstate commerce clause. But instead of seeking to control the wholesale price of gas or electricity delivered at or across state lines, a state commission may in controlling local retail rates look behind the wholesale transaction at the state line.²⁹

A second suggestive angle of the case is the disregard of the corporate fiction. The separate incorporation of the Kentucky business and the gasoline business was not allowed to defeat the jurisdiction of the Kentucky Commission or the critical examination of the "siphoning" contract with the gasoline extraction company. Moreover, the Kentucky Company, stock of which was owned by the United Company, was admittedly the "agent" of the latter and so treated.³⁰ The fact that stock in the by-product company had been distributed among the two corporate stockholders of the United Company was ignored in dealing with the contract between the two companies. This disregard of corporate entities seems to come within the group of cases in which such treatment is justified when the corporate device is used to evade statutory obligations³¹—

²⁴ *Pennsylvania Gas Co. v. Public Service Commission*, 252 U. S. 23 (1920). In this case the source of supply was in Pennsylvania whence it was transmitted to New York and there distributed and sold, and the price regulated by the New York Commission. For action by the Pennsylvania Commission, see *Peoples Natural Gas Co. v. Public Service Commission*, 270 U. S. 550 (1926).

²⁵ Moreover, as the Court noted, the Company conveniently omitted the contingency of possible franchise regulation in its hypothetical market.

²⁶ *Public Utilities Commission v. Landon*, 249 U. S. 236 (1919); *Missouri v. Kansas Natural Gas Co.*, 265 U. S. 298 (1924).

²⁷ *Public Utilities Commission v. Attleboro Steam and Electric Co.*, 273 U. S. 84 (1927).

²⁸ Gas was sold by the United Fuel Gas Co. at 7 cents to the parent companies (Columbia Gas & Electric Co. and Ohio Fuel Supply Co.) and at 15.51 cents and 16.83 cents to the Hope Natural Gas Co. and Pittsburgh and West Virginia Gas Co. (*City of Charleston v. Public Service Commission*, *supra*, n. 20 at 127-129.)

²⁹ Provided the company is willing, as in the instant

case, to have the property and business of the system treated as a unit. But if the company objects, the Commission may still (under present statutes) lack jurisdiction to get the necessary information from the foreign corporation, particularly if that corporation takes care not to perform functions drawing it within the web of the public utility concept.

³⁰ But suppose the agency theory had not been accepted? Would the Court then have looked only to the state line, or would it nevertheless have dealt with the property and business of the system? This is a crucial point in the regulation by state commissions of utility properties which are merely operating units of an interstate system. From the commissioners' standpoint, the instant case would have been more satisfactory if the court had dealt with the Warfield Company as part of the system over the objection of the appellants.

³¹ *U. S. v. Lehigh Valley Railroad Co.*, 220 U. S. 257 (1911); *Northern Securities Co. v. U. S.*, 193 U. S. 197 (1903); *U. S. v. Milwaukee Refrigerator Transit Co.*, 142 Fed. 247 (1905).

in the instant case, the regulating statutes.

Finally, the voiding of the contract between the holding company and the gasoline extraction company may be construed to give hope to state commissions which seek to examine the terms of contracts between affiliated corporations for the bearing of these contracts upon rates. No defrauding of creditors appeared in this case. The fraud, if any, was perpetrated on the Kentucky gas consumers. Not all contracts between companies so affiliated exhibit the grossness of this one. But it is "not without significance" that the terms adopted by the Court were those found when the parties dealt "at arms' length."³² The language used and the circumstances of the case give hope of stricter scrutiny of contracts binding together the elements of utility systems and should hearten the Commissioners in their attempts to get information on these transactions.

E. W. MOREHOUSE

³² If this objective benchmark, furnished by a prior inquiry, had not been available, what would the court have done? This suggests that Mr. Justice Stone may have been trying to loosen up the doctrine in the Southwestern Bell cases, when he said, "... Common ownership is not of itself sufficient ground for disregarding such intercorporate agreements when it appears that, although an affiliated corporation may be receiving the larger share of the profits, the regulated company is still receiving substantial benefits from the contract and probably could not have secured better terms elsewhere." In the present case, the evidence satisfied the Court that better terms could have been secured elsewhere. Otherwise the Court would have had to fall back upon the "substantial benefits"—value of service—doctrine. Did Mr. Justice Stone intend that courts would scrutinize with special closeness only those con-

A Correction

In the August, 1928. issue of the *Journal* the decision of the Supreme Court of Michigan in the case of the *Ridgefield Land Company v. City of Detroit et al.* (217 N. W. 58 (1928)) was reported under the title "Municipal Control of an Outlying Land Subdivision." This title and the first paragraph of the comment are misleading in that, although the statute concerned did grant powers of control "within and for a distance of three miles beyond the city limits," the plot in question was within the city limits of Detroit at the time of the controversy and therefore the matter of the city's extraterritorial powers was not involved in this case. The remainder of the report is correct, the Court holding that dedication of land for street purposes to meet the demands of the city plan commission was "a reasonable condition which must be complied with before the subdivision is accepted for record."

tracts between affiliated regulated and unregulated companies which involve allocations of joint costs and revenues? True, the contract in the present case was not strictly a management service contract of the sort so common in centrally managed utility systems. But management contracts are often between regulated and unregulated companies and they may siphon revenues from one part of a system to another, irrespective of costs incurred. And in passing on certain types of these management contracts, commissions and courts frequently do not have for comparison such arms'-length dealings as were available in this case. Nevertheless, the case seems strong support for applying to contracts between affiliated companies the test of "free contracts"—or what may be called the doctrine of alternative management cost, as determined in transactions between willing buyers and willing sellers.

BOOK REVIEWS

Ely, Richard T. and Wehrwein, George S. *LAND ECONOMICS. Ann Arbor: Edwards Brothers, 1928. pp. 221. \$3. (Mimeographed.)*

This is Part I of a volume projected by the authors and designed to cover the field of Land Economics. Thus far the members of the Institute for Research in Land Economics and Public Utilities have the distinction of holding the field with respect to books published under this title. The first publications consisted of four mimeographed volumes, by Ely and others, which covered a wide field and served a useful purpose, but which were never viewed as anything other than a tentative or preliminary contribution. The second work was that of Ely and Morehouse, authors of "The Elements of Land Economics," which was designed for use in introductory courses. This book has served as a basis for many beginning courses in Land Economics. The present volume, while dealing with the same subject matter, is of a different character in that it treats the various subjects much more at length, and rests more securely on the foundations of research. These foundations are not in any sense the exclusive research of the Institute, but include the best and most up-to-date materials from a wide range of workers, not only in the field of land economics but in many other fields involving land in its multi-fold uses.

While the volume is not mechanically divided into parts, there appears to be three main themes: (1) the discussion of land as property; (2) the utilization of land; and (3) the relation of land to population. The second part is the dominant one in so far as space accorded it may be taken as a measure. This means

that the bulk of this volume deals with land mainly from the physical point of view. From this it might be inferred that the treatment is mainly descriptive. This is far from the case. The treatment throughout the volume includes the more important, the subtler aspects of land utilization, bearing testimony to the fact that the authors have not for a moment lost sight of their main purpose, viz., that of presenting a discussion of the economic aspects of landed property, and not a mere catalog of facts pertaining to land. Any adequate discussion of the utilization of land must be interwoven with an intimate knowledge and use of the physical basis of land use and land value.

The more abstract and more difficult part of Land Economics, which discusses land as a factor of production, and the cost and income phases of landed property, land as the basis of taxation, and land tenure will be treated in the second part of the forthcoming volume.

The present volume will be welcomed not alone by those interested in land primarily, but by all students of economics wishing to round out their knowledge of the field of general economics. The work of the authors is painstaking, scholarly and reasonably complete.

B. H. HIBBARD.

Fisher, Ernest M. *REAL ESTATE SUBDIVIDING ACTIVITY AND POPULATION GROWTH IN NINE URBAN AREAS. Michigan Business Studies, Vol. I, No. 9, July, 1928. \$50.*

This monograph presents the results of an application of quantitative methods to one of the more important phases of urban expansion with the objective of *determining the relation between lots platted and growth of population.* The

outstanding characteristic of economic analysis during the past two decades has been the development and emphasis of quantitative methodology. Such methodology has been used extensively in the security, money, commodity and even the labor markets. To date it is almost unknown in the study of the land market. Therefore, such pioneering studies as this are most welcome if they lead to more extensive application of quantitative technique to urban land problems.

Professor Fisher's method may be outlined as follows: Nine urban areas were selected and the number of lots recorded in these areas from year to year was tabulated and the total number on record each year was divided by the total estimated population of the area for that year. One of the series begins as early as 1830; six of them begin previous to 1860; and the two shortest series begin in 1890 and 1900 approximately. The adequacy of the data from the standpoint of duration cannot be questioned.

The above division process gave a series of ratios of total lots to total population. From these ratios the median was selected as being typical for each community. The fluctuations of the actual yearly ratios from this typical central ratio or median were expressed as percentages of the central ratio. The result is a series of relatives which indicate the variation in the total number of lots per hundred of population for each community. The discussion of the fluctuations of these series of relatives forms the body of this very important study.

The nine cities and their environs, with certain minor limitations which the availability of the data impose, are Detroit, Cleveland, Milwaukee, Birmingham, Lansing, Toledo, Grand Rapids, Ann Arbor, and Flint. Of the five cities in the state of Michigan three, namely, Detroit, Grand Rapids, and Flint at

present (1926-1927) have ratios considerably in excess of their normal or typical ratios. The other two cities, Ann Arbor and Lansing, have responded to the generally observed conditions in the subdivision business at present and are found to be considerably below their typical ratio. This may be in part because these cities afford less basis for generating a land speculation enthusiasm predicated upon industrial potentialities. Cleveland, Milwaukee and Birmingham show present ratios which are approximately typical, indicating that their production of subdivided lots as evidenced by recordations is for the past few years approximately their typical amount.

Further consideration of the specific areas uncovers a difficult problem: namely, how to explain the variations in typical ratios of lots to population from one community to another. The range of the medians or typical ratios extends from 28.5 in Cleveland to 51.8 in Birmingham, Alabama. The Detroit typical ratio is 47.1 lots per hundred population, Milwaukee 32.6, Toledo 43.4, Grand Rapids 42.8, Flint 42.8, Lansing 49.8, Ann Arbor 40.2. These ratios indicate that in spite of tendencies toward vertical growth in cities we have a lot for approximately every two and one-half persons. It is interesting to note, however, by examination of the tables in the appendix of the study which present the actual data, that in several of the cities the actual number of lots added during some recent years almost equals the estimated increase in population which would result in a one to one ratio. It should be recalled that the population figure includes all human beings regardless of age or property-owning potentialities.

The author points out that the number of lots platted fluctuates widely from

year to year and responds to changes in general business conditions, possibly indicating that the sale of subdivided lots is more a function of purchasing power than it is of the expanding needs of a city. The highly undulatory nature of subdividing is also shown. It should be recalled that the primary assumption of this study is that the need for additional urban land arises from population growth and, therefore, the areal expansion of the city should bear a somewhat constant ratio to its population growth. Obviously, this question is one phase of the whole larger problem of the expanding urban area of cities. Predicated upon these initial investigations, value analyses may be possible which will guide the purchaser in determining the feasibility of sustaining a subdividing market by purchase. Were the records utilized in the study openly available to research workers it might be possible through further classification to study quantitatively directions and movements of city growth. Indeed, the possibilities suggested by this study challenge the imagination.

The general conclusions drawn from the study are not as important as the above suggested specific results. It is to be regretted that in deference to scientific method the author has avoided dogmatism regarding his results. It would seem that the author after conducting these studies is the best person to make a generalization which can be used as a bench mark until further studies would indicate its lack of accuracy. In other words, if we diminish the losses resulting from wide fluctuations in subdivision activity must we not set up as rapidly as possible some rule of thumb

which will be understood, accepted⁷ and utilized by the whole industry? An illustration from another real estate problem will explain this statement. There is probably no quantitative justification yet for the general assumption that vacancies in cities in excess of 5% of the total housing accommodations indicate an over-supplied market and, therefore, one in which price declines and sales inertia are imminent. As real estate groups the country over conduct surveys we will soon have an aggregate of information which will justify or revise this assumed percentage. However, the percentage has served a most useful purpose while awaiting the development of factual information on normal vacancy conditions. The reviewer regrets, therefore, that Professor Fisher has felt that the variations in his typical ratios as between cities have prevented him from making such generalizations for the benefit of the business.

The logarithmic charts for each of the cities, presenting the number of lots recorded, emphasize the highly episodic nature of this phase of the real estate business. A study of these charts together with the interpretations accompanying them raises many questions concerning the economic history of the real estate business and cause one to wonder about the possibility of achieving the ideal of a stabilized subdivision industry. The study is a most important contribution to the solution of a vital problem in the applied field of real estate practice and marks a significant step in the development of the quantitative side of urban land economics.

H. MORTON BODFISH

BOOK NOTICES

Mead, Edward S., and Ostrolenk, Bernard.
HARVEY BAUM. *Philadelphia: University of Pennsylvania Press, 1928. pp. 149. \$2.*

"Harvey Baum," by Dr. Edward Sherwood Mead, professor of Finance at the University of Pennsylvania, and Dr. Bernard Ostrolenk, director of the National Farm School, near Philadelphia, carries the descriptive sub-title, "A Study of the Agricultural Revolution."

This book first describes the transition from poverty to prosperity that took place when Harvey Baum, a Bucks County, Pennsylvania farmer, was converted to scientific potato growing. After a chapter devoted to measuring the financial "Plight of the American Farmer," the authors proceed from the particular to the general and make the statement, "If only this business (farming) is carried on with proper equipment, and with the same energy and intelligence which wins success everywhere, the profits of agriculture (today) are comparable to the profits of any other industry." A considerable portion of the book is devoted to an attempt to establish the truth of this assertion.

The authors conclude, however, that there is no hope for agriculture as a whole to be gained from the general adoption of these superior methods, since this would result in such an increased agricultural output as would lower prices again below the profit point. "The experience of Harvey Baum . . . shows that the productivity of American agriculture, when carried on with intelligence and adequate equipment, is at least double and, in some crops, three times the present average for the entire country." This situation is called "The Paradox of Scientific Agriculture." While this solution of the farm problem may be applied by any single farmer or by any hundred thousand farmers, it cannot be applied to the millions of farms. "If American farmers were generally to adopt the proven methods of scientific agriculture, the farming industry would go quickly and in the grand manner into bankruptcy," we read.

Neither can these authors see any aid through legislation, although further cooperative efforts may help slightly. Legislation of the McNary-Haugen type is particularly condemned because it would tend to increase production. The cost of "effective farm re-

lief" would be not less than six billion dollars a year, it is stated, and the cities would not stand for this. The very gloomy conclusion is that perhaps the best service the Federal government could render agriculture would be to "establish a program of industrial education which will train the young soldiers of agriculture, doomed to defeat if they do not leave the farms, for useful life in the cities."

Close examination of this discussion reveals certain unjustified assumptions. In common with many others these authors assume that farmers are greatly overproducing as compared with the pre-war period. Some figures are quoted to prove this contention. But these figures are several years old and make inadequate allowance for the time required for readjustment from the war-time peak of production.

When the production figures for the past four years (1924-1927, inclusive) are compared with the pre-war period (1910-1913, inclusive) no important overproduction is apparent. Omitting cotton and considering food crops only, since it is on food crops that the market is said to be less expandible, production in the past four years has in the case of corn and livestock averaged less than in the pre-war period, 1910-1913. Wheat production in 1924-1927 averaged 810,900,000 bushels, while in 1910-1913 it averaged about 700,000,000 bushels. But some increase in our home consumption cut average exports to 192,000,000. In the four years immediately preceding the war wheat exports were only 109,600,000 bushels but had been much higher than that for the preceding several decades. Around 1900 the usual exportation was about 200,000,000 bushels. It is an error, therefore, to assume that agriculture today, or during the past three or four years, has been suffering from material over-expansion.

Likewise the assumption that farm efficiency has increased suddenly and enormously, making a large proportion of our farmers unnecessary, seems erroneous to the reviewer. Increasing farm efficiency has been a continuous process for the past century. Still more persons can leave the farms as greater efficiency develops and our production will suffer no important curtailment. But to say that the recent large removal from country to city is the direct result of increased efficiency is entirely without justifi-

cation. Furthermore, the figures on increased farm efficiency that have been circulated recently require careful scrutiny. Take corn for instance, the average yield per acre in the United States for the past four years has been 26.2 bushels. The average yield in 1910-1913 was 25.97 bushels. Certainly this is no alarming increase even if these figures told the whole story. Wheat yield likewise averaged 14.79 bushels during the past four years, as compared with 14.39 bushels in 1910-1913.

But since the war not less than 15,000,000 acres of crop land have been permitted to go back to brush or weeds. It is reasonable to suppose that it was the poorest acres that were thus removed. This alone would account for the apparent increase in average acre yields. Then one must consider the increased use of fertilizer, which must be paid for.

Increased production per farmer through the use of tractors and power machinery is a fact. But this has not brought prosperity to those who use improved methods, except in very special cases, such for instance, as the dry land farmer who gets his wheat land at a very low rate, or the farmer who need not consider returns on reasonable land values. Theoretically these efficient farmers should be making excellent profits, if the average farmer is able to exist at all. But surveys give few examples of even highly efficient farms producing anything like adequate returns unless some local and special circumstance prevails which is in no way widely applicable.

Finally, it is erroneous to say that crop prices are low. They are high compared with pre-war prices. They are low only when compared to the high wages, high taxes and high costs for the other articles farmers must buy in a tariff-protected and immigration-restricted market. This is the situation that the McNary-Haugen bill seeks to correct.

Other assumptions are made by these writers that agricultural economists will not accept. But using only the few above indicated, it is easy to see how wrong and even dangerous conclusions may be reached.

O. M. KILE

Waite, Warren C. *ECONOMICS OF CONSUMPTION*. New York: McGraw-Hill Co., Inc., 1928. pp. xii, 258. \$3.00.

In his "Economics of Consumption" Professor Warren C. Waite of the University of

Minnesota has made the first successful attempt to produce a text for a college course in the field of consumption. For a number of years, Professor Waite has been teaching economics to girls taking the work in home economics, and this book is the product of his teaching and research in the field of consumption. For those economists who have been striving to stake out the field of consumption within the limitless boundaries of economic theory Professor Waite has performed a real service.

Opening with a lucid statement of the "consumption problem," Professor Waite organizes the material under four headings: (1) The System of Prices and the Consumer; (2) The Choice of Goods; (3) The Administration of the Individual Income; and (4) The Social Problem of Consumption.

The problem of consumption is conceived of "as a problem in behavior and in human motives, which might seem more properly the field of the psychologist than of the economist." The economist, however, "deals with a certain portion of the field of consumption; only those aspects of the consumption which are related to price." Economics is here defined "as the science which deals with the administration of resources in the satisfaction of human wants, in so far as this administration involves consideration of price or cost." In other words, Professor Waite's approach to the problem of consumption is the dollar approach, and he consistently avoids the embarrassment attendant on a discussion of the nature and metamorphosis of human wants.

At this point it is difficult to resist raising the question whether, if consumption is a phenomenon of human behavior, it is not necessarily consummated in terms of pounds and quarts and yards, and if this be true, how can it be studied in terms of price? To the reviewer, it seems that to study consumption in terms of price only is to be thrown back into the quagmire of the English Classicists who were forced to conclude that while the end of all production is consumption, production and consumption are really but one and the same thing, for the demand for goods is necessarily the supply of things. Such a conclusion seems inevitable if demand and supply are studied only in terms of money, for the yardstick measuring in either direction is purchasing power. Today it is difficult to discover any direct correlation between production and consumption, quan-

titatively considered. Production is the creation of scarcity value, measurable only in units of money, and consumption, as usually thought of, is the use of tangible things, and inverse correlation between the two is just as apt to be present as direct correlation. Individual consumption, no more than group consumption, can be separated from its antecedents and its consequences. To the writer of these lines, it would seem that consumption can claim a distinct place in the field of economic theory only if it is allowed to bring with it its unwanted relatives, sociology and psychology. In attempting to carry out his conception of the true place of consumption in economic thought, Professor Waite has robbed his subject of too much that lends virility. The result is a terseness and abruptness of statement benumbing to young minds, and apparent, usually, at just the point where elaboration of the thought is most desirable.

In the present stage of development of the subject of consumption, the organization of the available material is still attracting attention. A course in this subject given for students in home economics necessarily differs in organization from one given from the point of view of the theorist in economics or the philosopher trying to syncretize all learning. Professor Waite's book, supplemented by Hobson's "Work and Wealth," Chase's "Your Money's Worth," and Borsodi's "Distribution Age," together with perhaps one of the Foster and Catchings series, ought to provide any college group with ample thought-provoking food. But it is a merit rather than a defect of Professor Waite's book that both the instructor and student must stand ready at all times to supplement.

"The Economics of Consumption" has, in common with every other study written in the field of consumption to date, the unpleasant feature of dumping upon the reader a lot of statistical statements of demand curves, budget percentages, and the like, with no discoverable handle for taking hold of them. Hasn't the time come for letting Engle's Laws rest in peace, unless some practical sig-

nificance can be found to attach to their threadbare contours? Practically all the research yet made regarding the spending of the individual's income is devoid of sense when taken out of its setting in time and place. Will such a highly personal, individual and willful phenomenon of behavior as the spending of one's income, ever be reduced to figures? Until this is done, how can a study of consumption be made in numerical terms? And if such is ever an accomplished fact, can consumption be considered as merely a matter of spending?

MARGARET PRYOR

Black, Archibald. *TRANSPORT AVIATION*. New York: Simmons-Boardman Publishing Co., 1926. pp. vi, 245. \$3.00.

This might be called a preface to the economics of air utilities. It brings together in readable form genuine data culled from the experience of European and American operators of air-lines; and it ventures some predictions therefrom. There are maps of air-routes and taxi-stations; and detailed tables of operating costs of the United States Air Mail Service; data on investments in plant and equipment, and capitalization. Outstanding chapters deal with "Influences of Design upon Operating Costs," "Cost of Maintaining Engines in Air Transport," "Air Transport Investment and Operating Cost." Mr. Black believes the success of air-transport is now less a matter of technical development, than of public education; and that with volume traffic an immense drop in operating costs will bring rates within range of other transport rates. Aside from the United States Air Mail Service which is a subsidized "laboratory," the greatest development in this country may be expected to be in competition with steamships, and long or circuitous rail-routes.

Not the least interesting of his observations is the statement that "the development of air-lines will bring more revenue to the oil companies than it will to either the airplane or engine builder."

PETER LEININGER

CURRENT LITERATURE NOTICES*

URBAN LAND ECONOMICS

(Compiled by Coleman Woodbury)

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* Beginning with this issue, CURRENT LITERATURE NOTICES will not include references to articles in the *Journal*. Readers are referred to the table of contents of the separate issues and to the annual index published in the November number.

BIBLIOGRAPHY ON GOVERNMENT ELECTRIC POWER AND LIGHT DEVELOPMENT IN CONNECTION WITH WATERWAY, FLOOD CONTROL, IRRIGATION, AND OTHER PROJECTS*

Compiled by L. Duane Jennings

This list of references, with the index of sources for additional material, is practically complete from 1913 to date. Some articles which are included may not seem particularly germane to the subject but they contain interesting material closely related to these problems.

In analysing the problem, however, each project should be evaluated on its individual merits, but for the purpose the source of such specialized information alone is given. Moreover, in judging the merits of each reference it is important to bear in mind the distinction between propaganda and factual presentations. Furthermore, if the general question is to turn on whether or not government should enter the field of business, then all arguments for and against this policy should be considered. This will necessitate the use of a considerable number of references for which the catalog sources alone are given. The reader, however, is warned against going back much farther than 1910 for such data because changing conditions¹ have rendered much of that material obsolete.

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* Because of the widespread current interest in these problems the following bibliography is presented in place of the usual CURRENT LITERATURE NOTICES in the general field of public utilities.

¹ The power of the state and federal governments to regulate these industries in the interest of social welfare and possible developments in this direction was not generally recognized prior to this date, while technological changes in the industry have altered the situation materially in recent years.

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